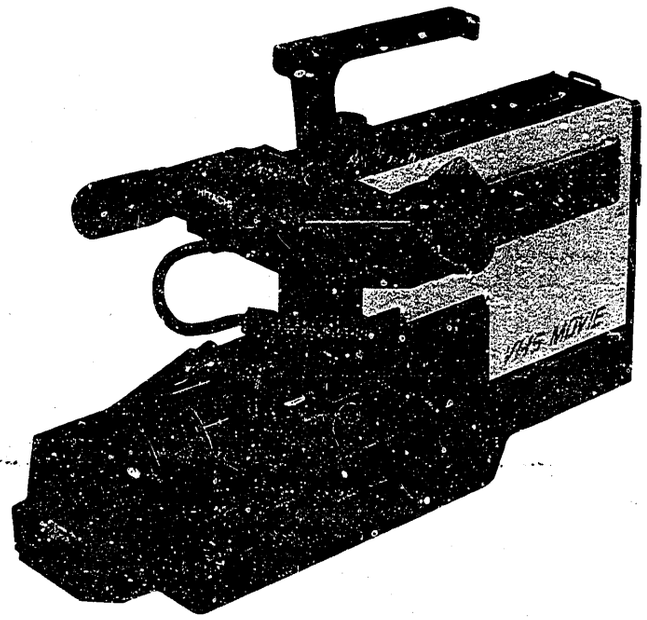
# HITACHI
# SERVICE MANUAL

| TK | NO.2334E |
|---|---|

# VM-2000A

*Technical Data*



**SAFETY PRECAUTIONS**

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers!
   Critical parts are marked with ⚠ in the schematic diagram, and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

**X-RAY RADIATION**

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is especially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be the same type as the original, Hitachi approved one.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

## VIDEO CAMERA/RECORDER

**August 1985** **TOKAI WORKS**

## SAFETY PRECAUTION

### SAFETY PRECAUTIONS

**NOTICE:** Comply with all cautions, and safety related notes located on or inside the cabinet and on the chassis.

1. When replacing a chassis in the instrument, all the protective devices must be put back in place, such as barriers, non-metallic knobs, adjustment and compartment convershields, isolation resistor-capacity, etc.
2. When service is required, observe the original lead dress. Extra precaution should be taken no assure correct lead dress in the high voltage circuit.
3. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
4. Before returning a instrument to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertently defeated during servicing.

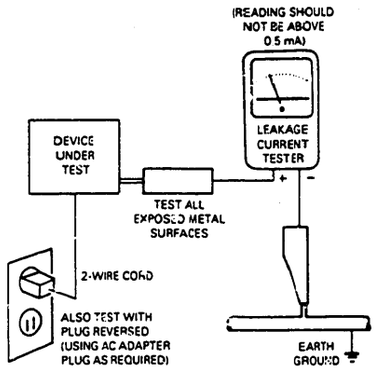
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

**Leakage Current Cold Check**

With the AC plug removed from the AC 120V, 60 Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to exposed metal part (antennas screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3MΩ and a maximum resistor reading of 5 MΩ. Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed meter parts not having a return path to the chassis will indicate an open circuit.

**Leakage Current Hot Check**

Plug the AC line cord directly into a AC 120V, 60 Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on. Using a "Leakage Current Tester", Measure for current from all exposed metal parts of the cabinet (antennas, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5 mA.


(READING SHOULD NOT BE ABOVE 0.5 mA)
LEAKAGE CURRENT TESTER
DEVICE UNDER TEST
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

**AC Leakage Test**

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE RECEIVER TO THE CUSTOMER.

### PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by making with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service manual, may create shock, fire or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

**FOR CANADA**

CAUTION AGAINST FUSE REPLACEMENT

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND SAME RATING FUSE IN ACCORDANCE WITH THE FUSE SYMBOL LABEL.

The following is the indication of the fuse symbol label which is affixed adjacent to the fuse in the equipment.

*Example

This symbol indicates Fast Operating Type 2A, 250V Fuse.

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**SPECIFICATIONS**

■ General

| | |
|---|---|
| Power requirements | 12V DC |
| Power consumption | 9.5 watts (nominal) |
| Dimensions | 6-7/16"(W) x 7-7/16"(H) x 13-15/16"(D) 164(W) x 189(H) x 354(H) |
| Weight | 5.5 lbs (2.5 kg) |

■ Video Recorder Section

| | |
|---|---|
| Format | VHS |
| Record/playback system | Four video record/playback heads |
| Video signal | EIA standard NTSC color |
| Tape speed | 33.35 mm/sec. |
| Video input | 1.0 Vp-p, 75 ohm |
| Video output | 1.0 Vp-p, 75 ohm |
| Audio input | –7.8 dBs (316 m Vrms), more than 47K ohms |
| Audio output: | –7.8 dBs (316 m Vrms), less than 1K ohm |
| Fast forward/rewind time | Less than 10 minutes with T-160 cassette |

■ Camera Section

| | |
|---|---|
| Scanning | 525 lines/60 fields/30 frames |
| Required minumum illumination | 7 lux |
| Camera tube | 1/2" striped Saticon |
| Lens diameter | 46 mm |

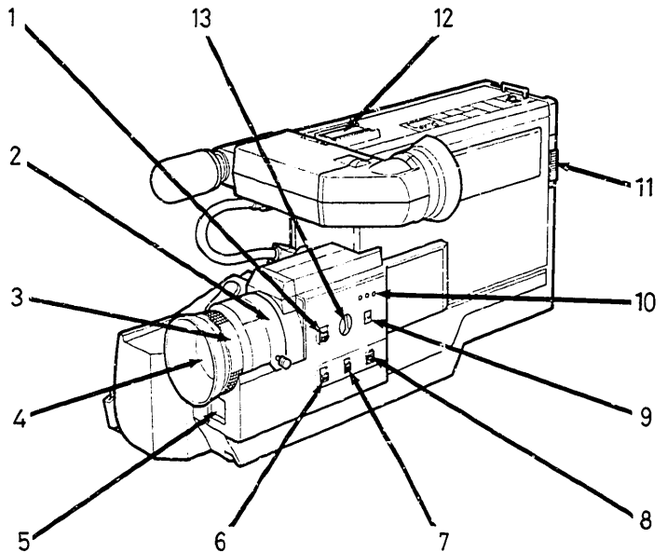



Fig. 1-1

### "WHITE BAL"ance Switch
When this Switch is in the "**AUTO**" position, the color balance is set automatically. With the Switch in the "**MANUAL**" position adjust the White Balance Control for a natural picture while viewing the color TV receiver/monitor.

### Zoom Ring (Manual Zooming)
The picture size can be magnified 6 times with the use of the zoom feature. Just rotate the Zoom Ring for a close up (T) or wide angle (W) picture. Macro close-up, as close as 1 cm from object, is feasible.

### Focus Ring
Do not attempt to manually turn the Focus Ring when the Camera/Recorder is in the AUTO FOCUS mode.

### Lens
F1.2 (8.5 ~ 51 mm) 6:1 power zoom lens features auto focus and auto iris functions.

### Auto Focus Window
To automatically focus the camera lens, this window receives infrared light which is transmitted from the Camera/Recorder lens and is reflected back from the object.

### "AUTO/MANUAL FOCUS" Switch
Set this Switch to the "**AUTO**" position for automatic focusing, and to the "**MANUAL**" position for focusing with the Focus Ring. When the Switch is held in the upper position, automatic focusing is performed until the Switch is released.

### "HI-GAIN" Switch
Used for shooting picture at low light levels. Under normal lighting conditions, place this Switch in the "**NORMAL**" position.

### "POWER SAVE" Switch
This is a Stand-by Switch to minimize the Battery power consumption. In "**POWER SAVE**" position, the Electronic Viewfinder is disabled.

### "CHECK" Button
Used to check the last few seconds of recorded segment in the record/pause mode.

### "BATTERY" Indicators
These three Lights give the user a general idea of the Battery conditions. A fully charged Battery causes all three Lights to light.

### "BATT EJECT" Lever
Releases the Battery or the AC Adaptor/Charger attached to the Video Camera/Recorder.

### Accessory Shoe
Used to attach the Carrying Handle (Accessory No. 3) or Camera Light.

### Manual "WHITE BAL"ance Control
Used to manually adjust the color balance with the "**WHITE BAL**" Switch set to "**MANUAL**" position.

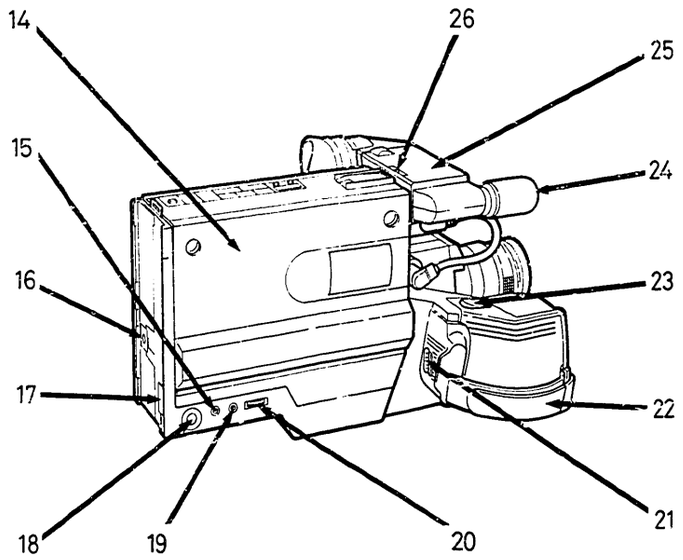



Fig. 1-2

### Cassette Holder
Press **"EJECT"** Button to open the Cassette Holder. Be aware of the Cassette direction when inserting.

**NOTE:** Power source must be connected to open the Cassette Holder.

### "EAR"phone Jack
Sound being recorded by the microphone or played back may be monitored by attaching earphone (Accessory No. 13) to this jack.

### "DC IN-12V" Jack
Used for the optional Car Battery Cord which connects to the cigarette lighter socket in your car.

### Power Terminal Protection Cover
This Cover should be in the uppermost position covering the terminal at all times.

### "A/V OUT" Jack
Connect the Audio/Video Output Cable (Accessory No. 9) to this jack and to the audio and video inputs of your TV/monitor receiver. You may also connect the RF Converter Unit (Accessory No. 5) to this jack and your TV receiver.

### "REC/PAUSE" Jack
Recording and pausing may be remotely controled by a wired Remote Pause Cable with switch (Optional accessory).

### "TRACKING" Control
Used when playing a tape recorded on another VTR. Adjust for best picture. At all other times leave it in the center position, which can be found as a small detent in the movement of the knob.

### Record Start/Stop Button
This Button is used to control the Camera/Recorder. When this Button is pressed with the Camera/Recorder set to the recording mode, the tape runs to start recording.
When this Button is pressed again, the tape stops and the Camera/Recorder enters the record/pause (stand-by) mode.

### Hand Strap
Adjust to best fit to your hand.

### Power Zoom Switch
This switch performs zooming electrically.

"W": Picture becomes wider gradually.
"T": Picture becomes telescopic gradually.

### Microphone
Sensitive to sounds coming from the direction in which the camera is pointed. Detachable with fastening ring.



### Electronic Viewfinder (EVF)
Displays what the Camera/Recorder lens sees. The electronic viewfinder also functions as a convenient black-and-white monitor during playback of recorded material.

### "LOCK/RELEASE" Switch
Slide the Lever to **"RELEASE"** position. Used to adjust the eyepiece position of Electronic Viewfinder (EVF).

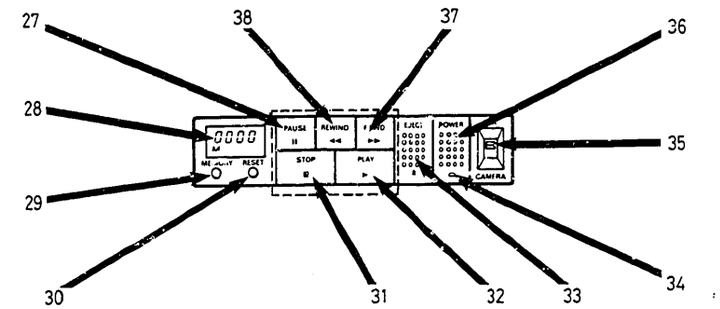



Fig. 1-3

### "PAUSE" Button
Press this Button during playback to display a still picture on the viewfinder.

### Tape Counter
Indicates tape position. Used to locate a particular point on the tape.

### "MEMORY" Button
If this Button is pressed, **"M"** appears on the Digital Tape Counter Display and it memorizes the tape position of **"0000"**.

### "RESET" Button
Press to reset the Tape Counter to **"0000"**.

### "STOP" Button
The **"STOP"** Button is used to stop playback, rewind, and fast forward operations. The **"STOP"** Button has no effect during record operation.

### "PLAY" Button
Used for playback of tape recorded in SP mode.

### "EJECT" Button
Operates with **"POWER"** either on or off.

### "POWER" Light and Dew Indicator Light
Flashing of the Light on the **"POWER" ON/OFF** Button indicates dew condensation on Camera/Recorder mechanism. While this Light is flashing, the unit will not operate. Then leave the power on. When the Light stops flashing, the unit can be operated.

### "VTR/CAMERA" Select Switch
This Switch changes the Camera/Recorder to the record mode or to the playback mode. The Switch must be in **"CAMERA"** position for recording.

### "POWER" ON/OFF Button
Press **"POWER" ON/OFF** Button to turn Camera/Recorder on. Press again to turn Camera/Recorder off.
**"POWER"** Light illuminates when **"POWER" ON/OFF** Button is pressed and Camera/Recorder is on.

### "F.FWD" Button
Press this Button during Stop, Pause or Rewind mode, and fast-forwarding starts.
Press the Button during playback of tape, and the tape is played back in the forward direction approximately 3 times faster than the normal speed to confirm the recorded content.
Press **"PLAY"** Button to return to normal playback mode or press **"STOP"** Button to stop tape movement.

### "REWIND" Button
Press this Button during Stop, Pause or Fast forward mode, and fast-rewinding starts.
Press the Button during playback of tape, and the tape is played back in the rewind direction approximately 3 times faster than the normal speed to confirm the recorded contents.
Press **"PLAY"** Button to return to normal playback mode or press **"STOP"** Button to stop tape movement.

CIRCUIT BOARD LOCATION

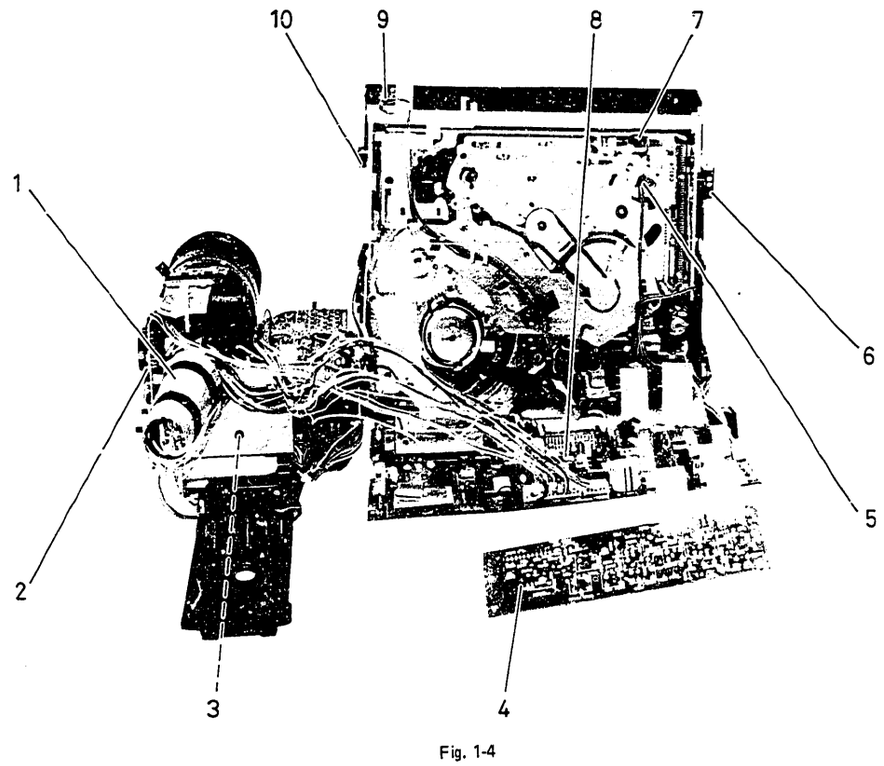



Fig. 1-4

1. Saticon
2. Camera Switch Circuit Board
3. Preamp Circuit Board
4. Function Switch Circuit
5. Reel Sensor
6. Take-up End Sensor
7. Cassette Holder Switch
8. Main Circuit Board
9. Safety Tab Switch
10. Supply End Sensor

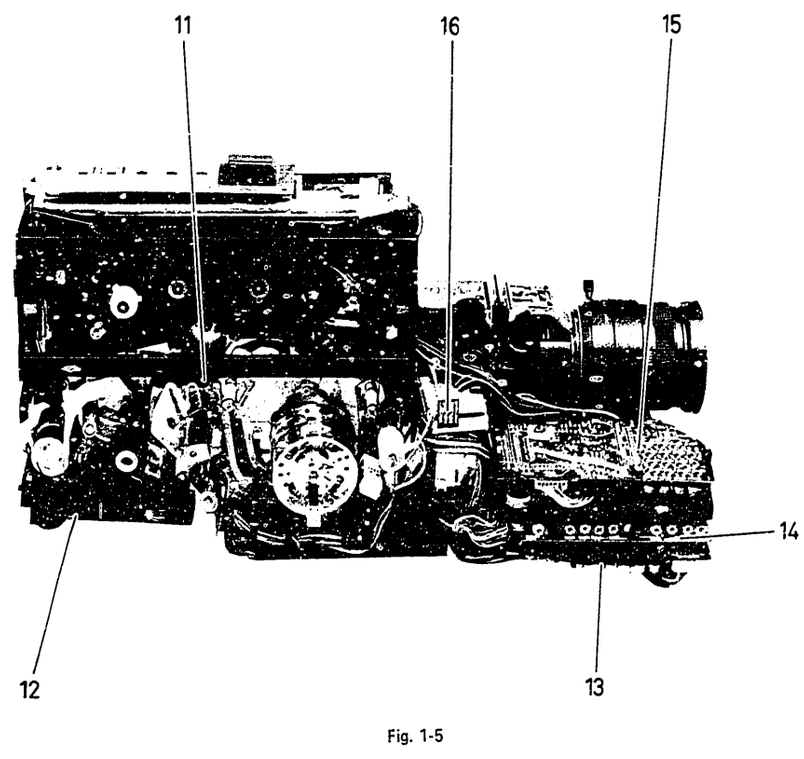



Fig. 1-5

11. End lamp
12. Audio Circuit Board
13. Process Circuit Board
14. Deflection Circuit Board
15. Regulator Circuit Board
16. 8V Regulator Circuit Board

## DIASSEMBLY

### CASE

**Electronic View finder (EVF) Removal** (Fig. 2-1)

1. Disconnect EVF connector.
2. Release the EVF lock and remove the EVF in the direction of the arrow.

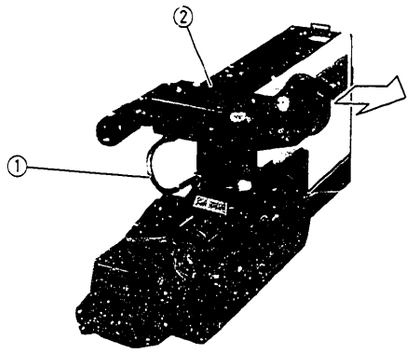



**Fig. 2-1 Electronic Viewfinder (EVF) Removal**

**Electronic Viewfinder (EVF) Shoe Removal** (Fig. 2-2)

1. Remove the EVF. (See Fig. 2-1)
2. Remove one (1) screw holding the EVF shoe.
3. Remove the EVF shoe in the direction of the arrow.

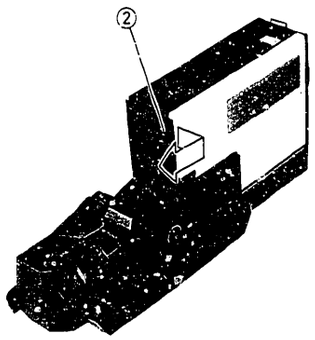



**Fig. 2-2 Electronic Viewfinder (EVF) Shoe Removal**

**Accessory Shoe Removal** (Fig. 2-3)

1. Remove two (2) screws holding the accessory shoe.

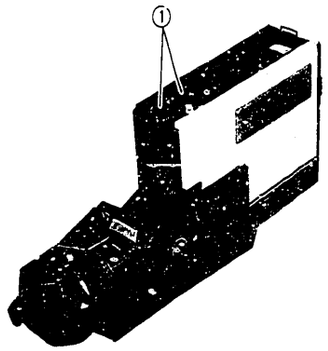



**Fig. 2-3 Accessory Shoe Removal**

**Cassette Lid Removal** (Fig. 2-4)

1. Remove two (2) screws holding the cassette lid.
2. Remove the cassette lid in the direction of the arrow.

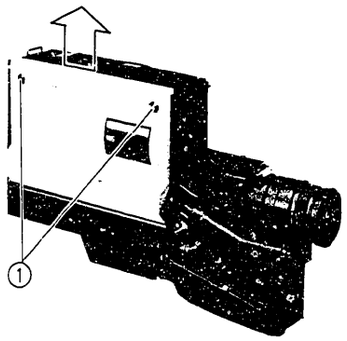



**Fig. 2-4 Cassette Lid Removal**

**Left Case Removal** (Figs. 2-5, 2-6)

1. Remove the EVF. (See Fig. 2-1)
2. Remove the EVF shoe. (See Fig. 2-2)
3. Remove the accessory shoe. (See Fig. 2-3)
4. Remove two (2) screws holding the top cover. (See Fig. 2-5)
5. Remove the top cover.
6. Remove one (1) screw holding the left case.
7. Remove five (5) screws holding the left case. (See Fig. 2-6)
8. Remove the left case in the direction of the arrow.

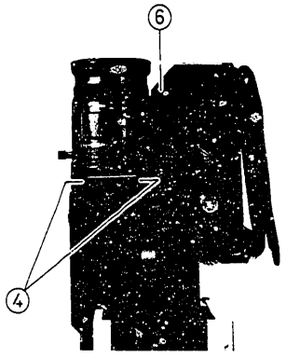



Fig. 2-5 Left Case Removal

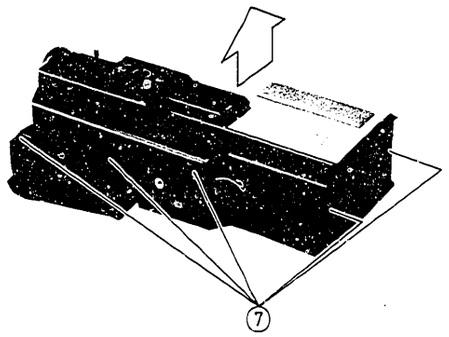



Fig. 2-6 Left Case Removal

**Right Case Removal** (Figs. 2-7, 2-8)

1. Remove the EVF. (See Fig. 2-1)
2. Remove the EVF shoe. (See Fig. 2-2)
3. Remove the accessory shoe. (See Fig. 2-3)
4. Remove the cassette lid. (See Fig. 2-4)
5. Remove the left case. (See Figs. 2-5, 2-6)
6. Disconnect connector CN909. (See Fig. 2-7)
7. Disconnect three (3) connectors (CN506, CN520, CN621). (See Fig. 2-8)
8. Remove four (4) screws holding the right case.
9. Release one (1) tab.
10. Remove the right cover in the direction of the arrow.

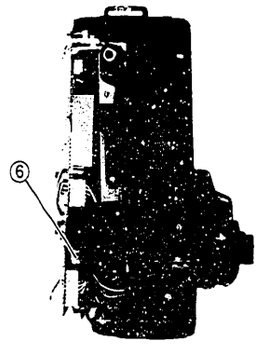



Fig. 2-7 Right Case Removal

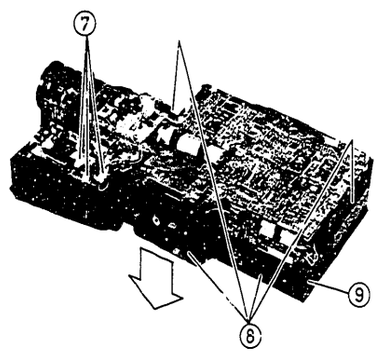



Fig. 2-8 Right Case Removal



**Tape Transport Mechanism – Top View**

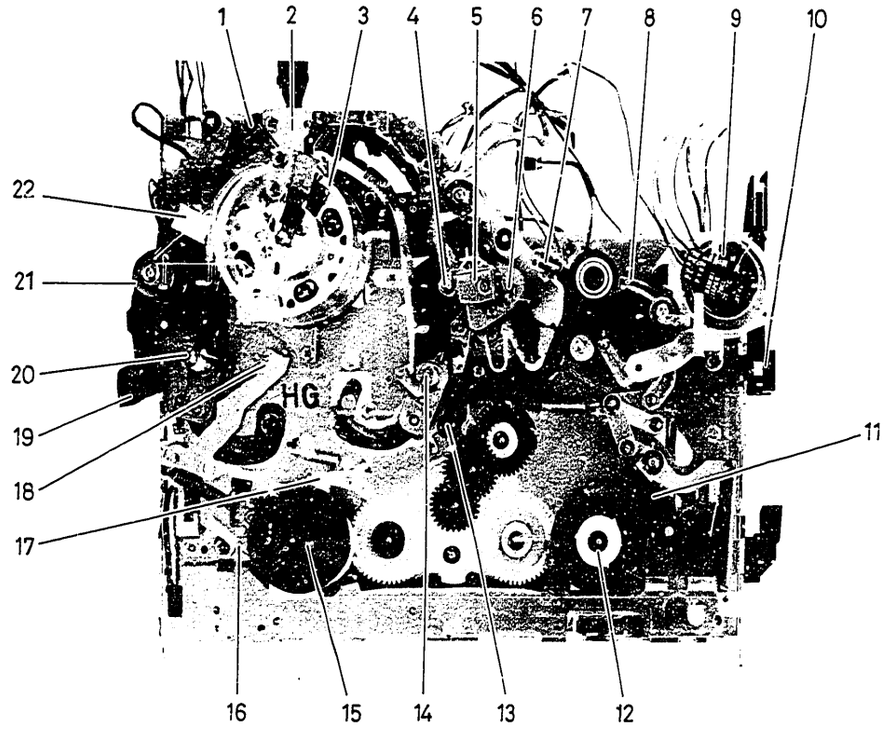



Fig. 2-9 Tape Transport Mechanism – Top View

1. Catcher Block
2. Cylinder Motor Brush
3. Video Head (Upper Cylinder)
4. Guide Post
5. A/C (Audio/Control) Head
6. Guide Arm Assembly
7. Dew Sensor
8. Pressure Roller Arm
9. Capstan Motor
10. Take-up End Sensor
11. Take-up Sub Brake
12. Take-up Reel Table
13. End Lamp
14. Take-up Guide Roller
15. Supply Reel Table
16. Tension Band
17. Supply Sub Brake
18. Tension Arm
19. Supply End Sensor
20. Supply Guide Roller
21. Impedance Roller
22. Full Earse (FE) Head

Tape Transport Mechanism Identification – Bottom View

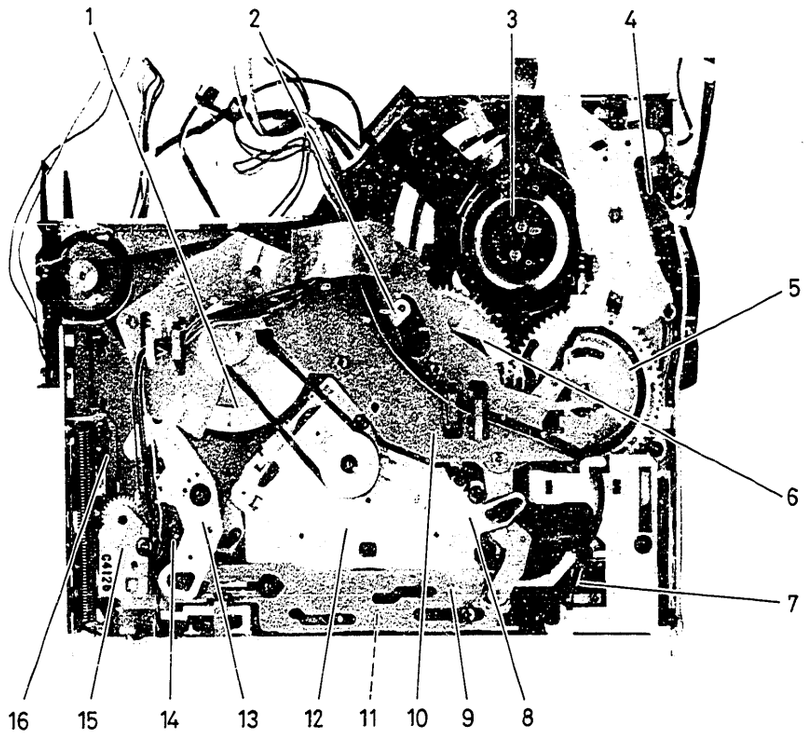



Fig. 2-10 Tape Transport Mechanism – Bottom View

1. Capstan Flywheel
2. A/C Head Control Arm
3. Lower Cylinder (Cylinder Motor)
4. Mechanism State Switch
5. Supply Loading Cam Gear
6. Take-up Loading Cam Gear
7. Loading Motor
8. Cam Gear Arm
9. Slider
10. Cam Gear Plate
11. Main Brake Arm
12. Reel Gear Block
13. PB/REC Drive Arm
14. Reel Sensor
15. Damper
16. Up Slider



## CIRCUIT BOARD

Remove the right case and left case as previously given.

**Function Switch Circuit Board Removal**
(Figs. 2-11, 2-12, 2-13)

1. Disconnect connector CN1501. (See Fig. 2-11)
2. Release seventeen (17) wires from the wire holder.
3. Release two (2) tabs holding the main circuit board.
4. Pull out the function switch circuit board in the direction of the arrow. (See Fig. 2-12)
5. Open the main circuit board and function switch circuit board in the direction of the arrow.
6. Disconnect two (2) flat cables (CN005, CN006). (See Fig. 2-13)

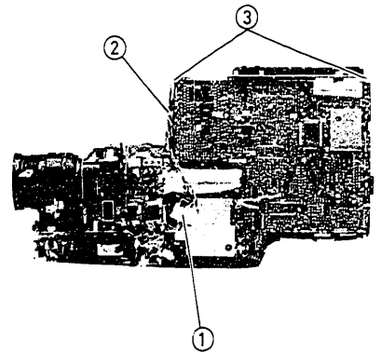



Fig. 2-11 Function Switch Circuit Board Removal

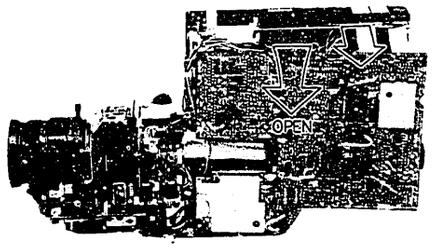



Fig. 2-12 Function Switch Circuit Board Removal

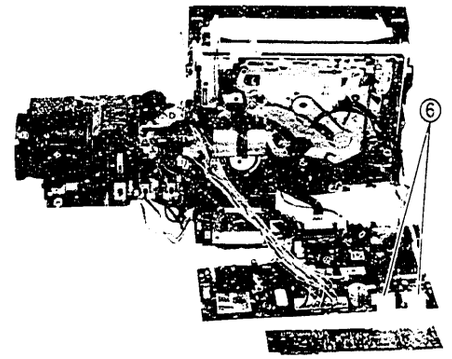



Fig. 2-13 Function Switch Circuit Board Removal

**Main Circuit Board Removal** (Figs. 2-14, 2-15)

1. Remove the function switch circuit board. (See Figs. 2-11, 2-12, 2-13)
2. Disconnect five (5) connectors (CN1501, CN1602, CN611, CN612, CN903). (See Fig. 2-14)
3. Remove the shield cover of luma/chroma section.
4. Disconnect four (4) flat cables (CN4C3, CN107, CN613, CN214). (See Fig. 2-15)
5. Unsolder one (1) lead.
6. Release two (2) tabs of the board holders. (See Fig. 2-14-1)
7. Remove the main circuit board from the board holders. (See Fig. 2-15)

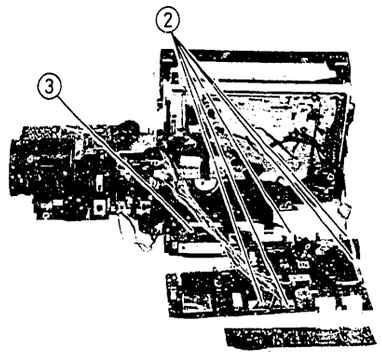



Fig. 2-14 Main Circuit Board Removal

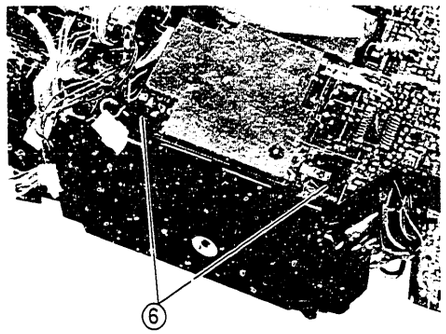



Fig. 2-14-1 Main Circuit Board Removal

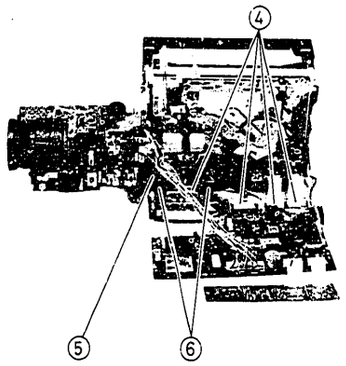



Fig. 2-15 Main Circuit Board Removal

**Audio Circuit Board Removal** (Figs. 2-16, 2-17, 2-18)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Disconnect connector CN903. (See Fig. 2-16)
3. Disconnect two (2) flat cables (CN408, CN107).
4. Release three (3) tabs and open the audio circuit board. (See Fig. 2-17)
5. Disconnect twelve (12) connectors (CN415, CN404, CN416, CN125, CN124, CN123, CN122, CN121, CN120, CN119, CN118, CN117). (See Fig. 2-18)
6. Release one (1) tab and remove the AV OUT connector in the direction of the arrow.

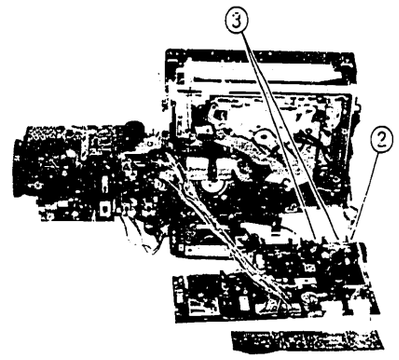



Fig. 2-16 Audio Circuit Board Removal

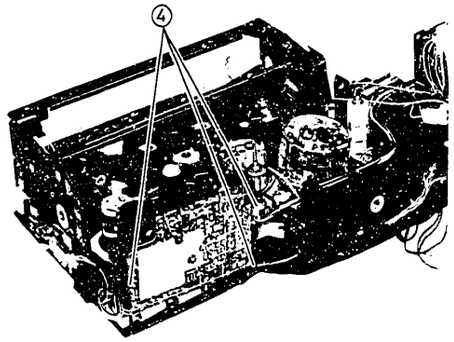



Fig. 2-17 Audio Circuit Board Removal

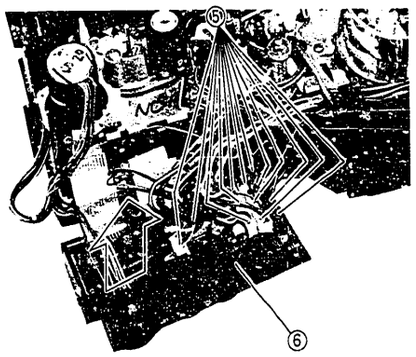



Fig. 2-18 Audio Circuit Board Removal



**Process Circuit Board Removal** (Figs. 2-19, 2-20)

1. Disconnect five (5) connectors (CN017, CN018, CN1315, CN1509, CN1619). (See Fig. 2-19)
2. Release two (2) tabs and open the process circuit board in the direction of the arrow.

   Note: When the description "Open the process circuit board" is given in the disassembly hereafter, the five (5) connectors in item 1 need not to be disconnected.

3. Remove the process circuit board from board holders. (See Fig. 2-20)

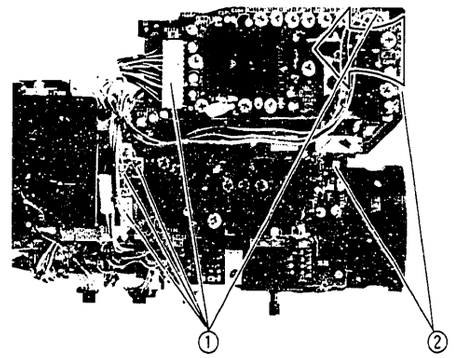



Fig. 2-19 Process Circuit Board Removal

Fig. 2-20 Process Circuit Board Removal

**Deflection Circuit Board Removal**
(Figs. 2-21, 2-22, 2-23, 2-24, 2-25, 2-26)

1. Disconnect connector CN1501. (See Fig. 2-21)
2. Disconnect connector CN1509. (See Fig. 2-22)
3. Disconnect connector CN1525. (See Fig. 2-23)
4. Remove one (1) screw holding the heat sink of the 8V regulator circuit board and remove the heat sink.
5. Remove one (1) rivet and release one (1) tab holding the regulator circuit board.
6. Open the regulator circuit board in the direction of the arrow.

   Note: When the description "Open the regulator circuit board" is given in the disassembly hereafter, the screw in item 4 need not to be removed.

7. Disconnect three (3) connectors (CN1311, CN1312, CN1313) on the deflection circuit board. (See Fig. 2-24)
8. Disconnect connector CN1510 on the regulator circuit board.
9. Disconnect two (2) connectors (CN1315, CN1316). (See Fig. 2-25)
10. Open the process circuit board. (See Fig. 2-19)
11. Release two (2) tabs and remove the deflection circuit board. (See Fig. 2-26)

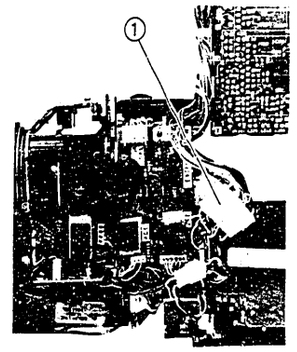



Fig. 2-21 Deflection Circuit Board Removal

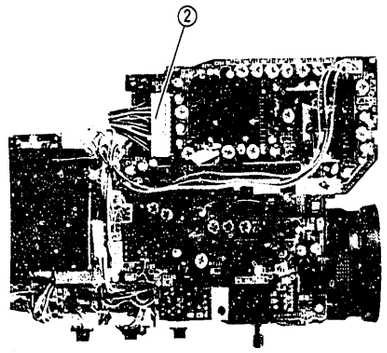



Fig. 2-22 Deflection Circuit Board Removal

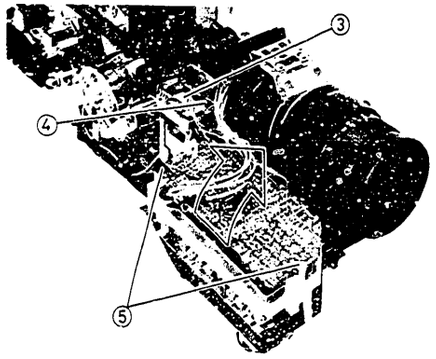



Fig. 2-23 Deflection Circuit Board Removal

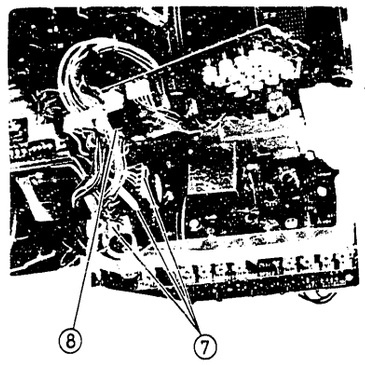



Fig. 2-24 Deflection Circuit Board Removal

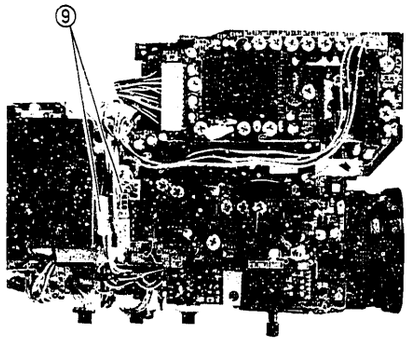



Fig. 2-25 Deflection Circuit Board Removal

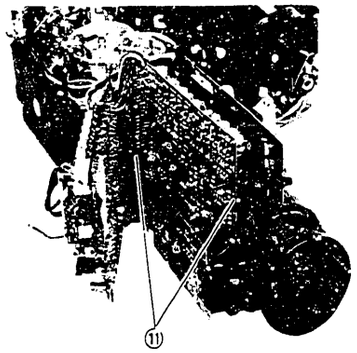



Fig. 2-26 Deflection Circuit Board Removal

**Regulator Circuit Board Removal** (Fig. 2-27)

1. Remove the deflection circuit board. (See Figs. 2-21, 2-22, 2-23, 2-24, 2-25, 2-26)
2. Disconnect four (4) connectors (CN024, CN1505, CN1508, CN1607) on the regulator circuit board. (See Fig. 2-27)

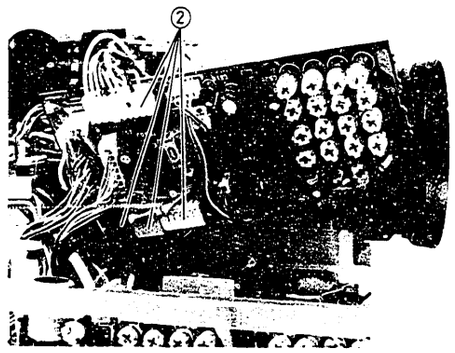



Fig. 2-27 Deflection Circuit Board Removal



**Camera Switch Circuit Board Removal**
(Figs. 2-28, 2-29. 2-30)

1. Open the regulator circuit board. (See Fig. 2-23)
2. Disconnect connector CN1607. (See Fig. 2-28)
3. Disconnect connector CN1619. (See Fig. 2-29)
4. Disconnect connector CN501. (See Fig. 2-30)
5. Remove one (1) screw holding the camera switch circuit board.

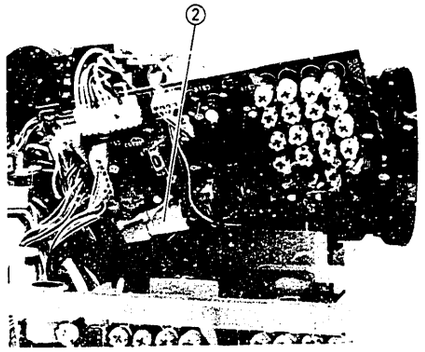



Fig. 2-28 Camera Switch Circuit Board Removal

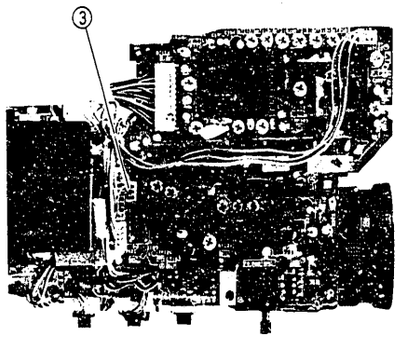



Fig. 2-29 Camera Switch Circuit Board Removal

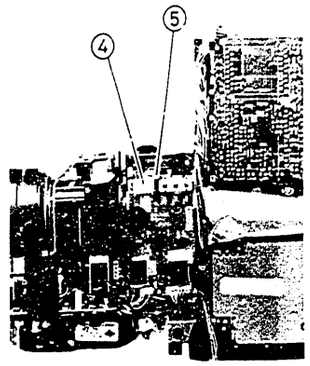



Fig. 2-30 Camera Circuit Board Removal

**8V Regulator Circuit Board Removal** (Fig. 2-31)

1. Disconnect connector CN1525. (See Fig. 2-31)
2. Remove one (1) screw holding the 8V regulator circuit board.

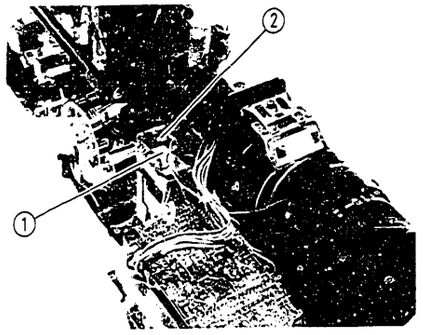



Fig. 2-31 8V Regulator Circuit Board Removal

**Preamp Circuit Board Removal**
(Figs. 2-32, 2-33, 2-34, 2-35, 2-36)

1. Disconnect three (3) connectors (CN501, CN602, CN404). (See Fig. 2-32)
2. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-33, 2-34)
3. Unsolder two (2) leads. (See Fig. 2-35)
4. Remove two (2) screws holding the preamp shield cover.
5. Unsolder the target lead. (See Fig. 2-36)
6. Remove one (1) screw and one (1) spring washer holding the preamp circuit board.

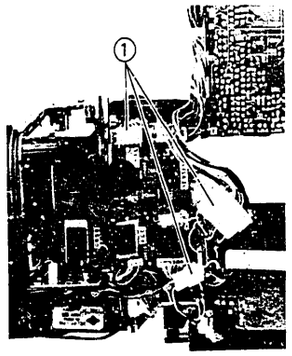



Fig. 2-32 Preamp Circuit Board Removal

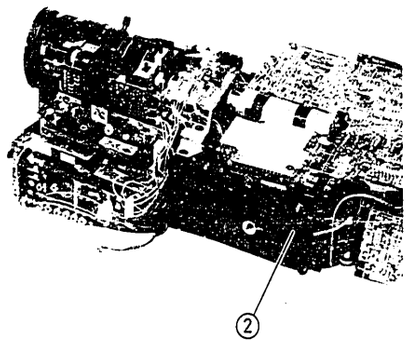



Fig. 2-33 Preamp Circuit Board Removal

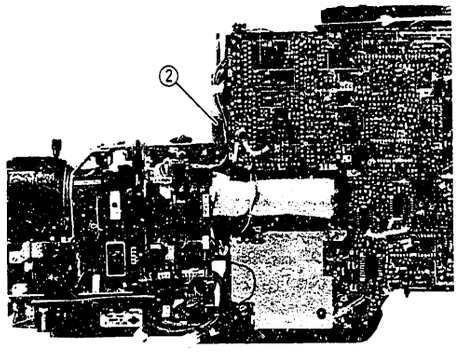



Fig. 2-34 Preamp Circuit Board Removal

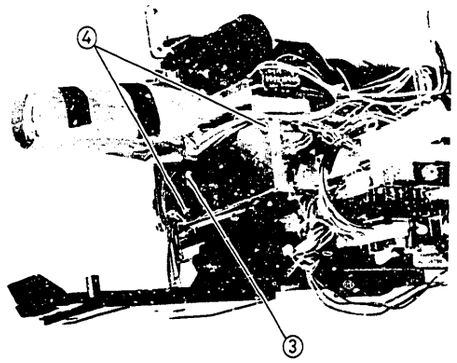



Fig. 2-35 Preamp Circuit Board Removal

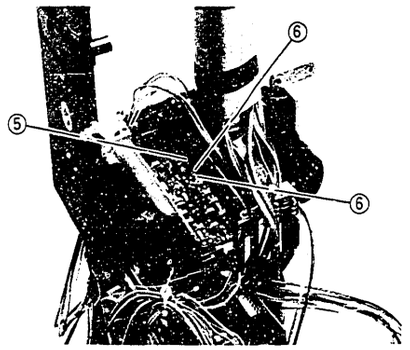



Fig. 2-36 Preamp Circuit Board Removal

**EVF Connector Removal** (Figs. 2-37, 2-38, 2-39)

1. Disconnect connector CN1505. (See Fig. 2-37)
2. Disconnect connector CN404. (See Fig. 2-38)
3. Remove one (1) screw holding the EVF connector. (See Fig. 2-39)

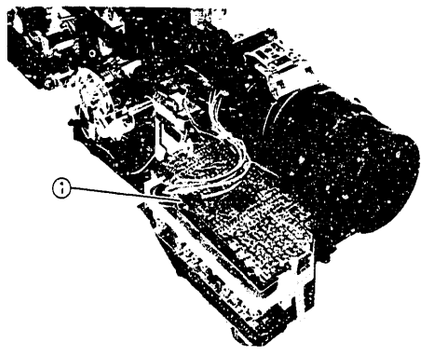



Fig. 2-37 EVF Connector Removal



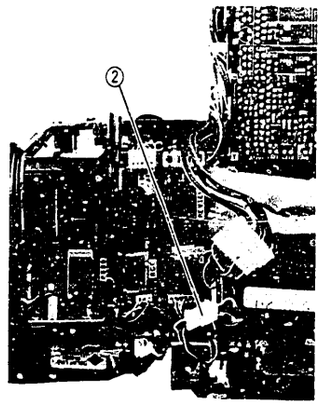



Fig. 2-38 EVF Connector Removal

Fig. 2-39 EVF Connector Removal

**Zoom Switch Circuit Board Removal** (Fig. 2-40)

1. Remove two (2) screws holding the zoom switch circuit board holder.

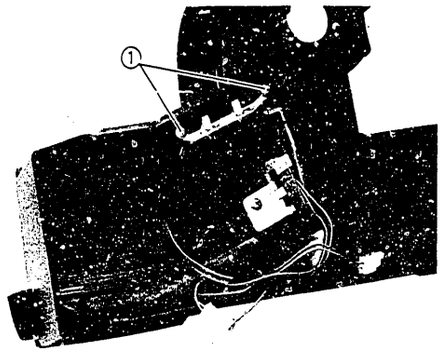



Fig. 2-40 Zoom Switch Circuit Board Removal

**VTR REC Switch Circuit Board Removal** (Figs. 2-41, 2-42)

1. Remove one (1) screw holding the VTR REC switch circuit board holder. (See Fig. 2-41)
2. Remove the VTR REC switch circuit board holder.
3. Release one (1) tab and remove the VTR REC switch circuit board. (See Fig. 2-42)

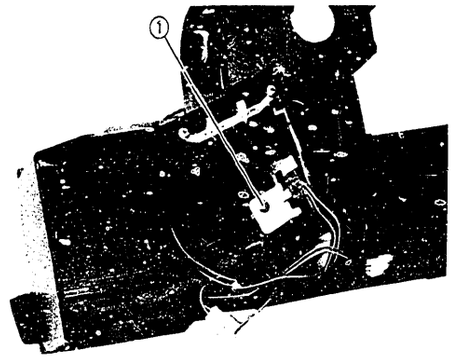



Fig. 2-41 VTR REC Switch Removal

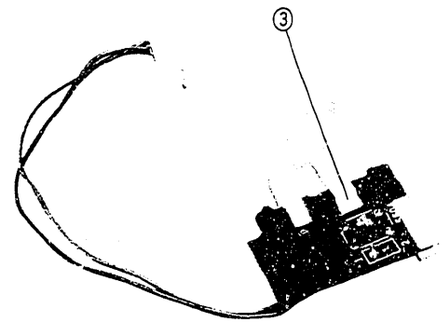



Fig. 2-42 VTR REC Switch Circuit Board Removal

## CASSETTE LOADING MECHANISM

Remove the right case and left case as previously given.

**Cassette Loading Mechanism Removal** (Figs. 2-43, 2-44, 2-45)

1. Remove the function circuit board. (See Figs. 2-11, 2-12, 2-13)
2. Remove the main circuit board. (See Figs. 2-14, 2-15)
3. Remove the audio circuit board. (See Figs. 2-16, 2-17, 2-18)
4. Disconnect three (3) connectors (CN501, CN602, CN404). (See Fig. 2-43)
5. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-44, 2-45)

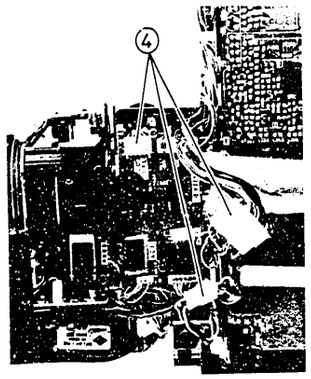



Fig. 2-43 Cassette Loading Mechanism Removal

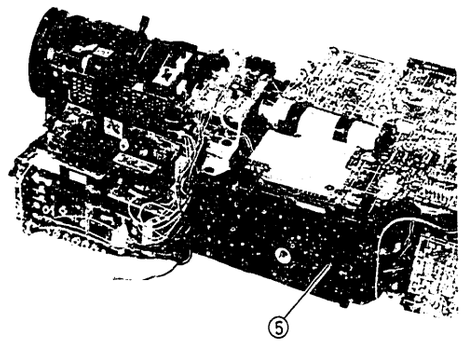



Fig. 2-44 Cassette Loading Mechanism Removal

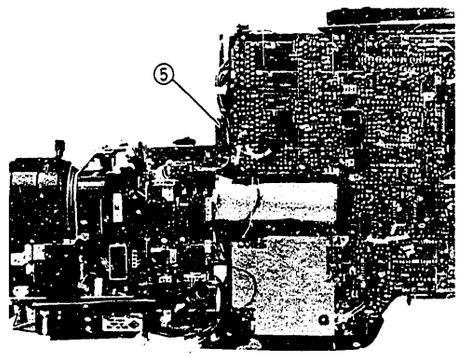



Fig. 2-45 Cassette Loading Mechanism Removal

**Cassette Holder Removal**
(Figs. 2-46, 2-47, 2-48, 2-48-1, 2-48-2)

1. Disconnect three (3) connectors (CN501, CN602, CN404). (See Fig. 2-43)
2. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-44, 2-45)
3. Remove one (1) screw holding the safety tab switch. (See Fig. 2-46)
4. Release one (1) tab and lift up the cassette holder.
5. Remove the cassette holder spring. (See Fig. 2-47)
6. Remove two (2) screws holding the cassette holder. (See Figs. 2-47, 2-48)
7. Release two (2) tabs. (See Figs. 2-48-1, 2-48-2)
8. Move the front arm in the direction of the arrow (A).
9. Move the rear arm in the direction of the arrow (B).

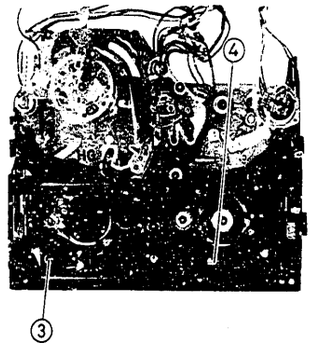



Fig. 2-46 Cassette Holder Removal

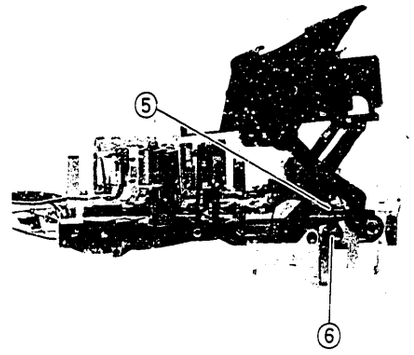



Fig. 2-47 Cassette Holder Removal

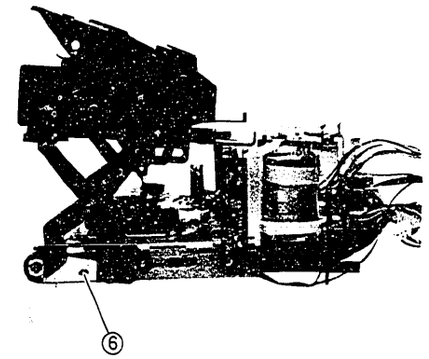



Fig. 2-48 Cassette Holder Removal

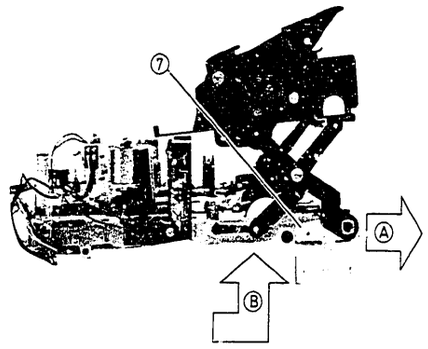



Fig. 2-48-1 Cassette Holder Removal

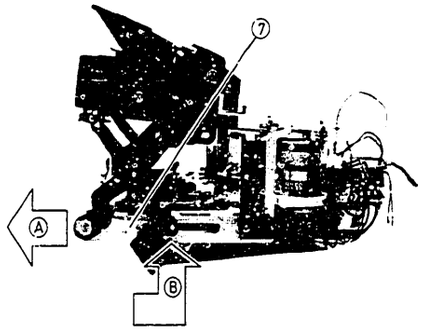



Fig. 2-28-2 Cassette Holder Removal

**Video Head (Upper Cylinder) Removal** (Figs. 2-49, 2-50)

1. Remove one (1) screw holding the cylinder motor brush. (See Fig. 2-49)
2. Unsolder eight (8) leads on the upper cylinder. (See Fig. 2-50)
3. Remove two (2) screws and pull out the upper cylinder.

Note: Be careful that your fingers or tools do not touch the video head tips during work.
Install the video head by the reverse procedure to removal.
Tighten the two (2) video head holding screws alternately.
Adjust as follows after installing the video head.

- * Tracking Preset Adjustment
- * A/C Head Horizontal Position Adjustment
- * Head Switching Point Adjustment
- * Record Chroma and Luminance Level Adjustment

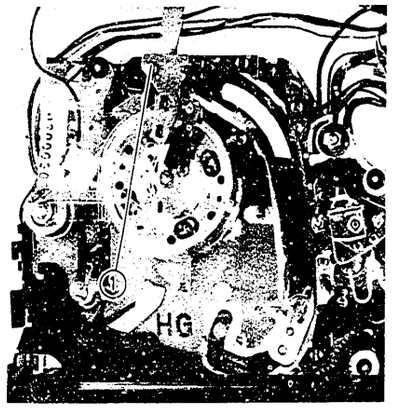



Fig. 2-49 Video Head (Upper Cylinder) Removal

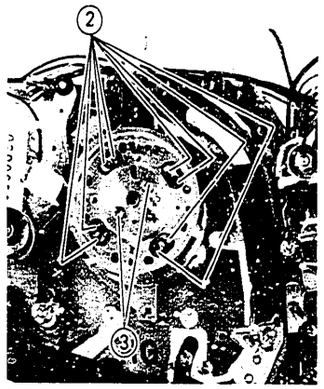



Fig. 2-50 Video Head (Upper Cylinder) Removal

**Audio/Control (A/C) Head Removal** (Figs. 2-51, 2-52, 2-53)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-12, 2-13)
2. Disconnect connector CN611. (See Fig. 2-51)
3. Open the audio circuit board. (See Fig. 2-18)
4. Disconnect connector CN415. (See Fig. 2-52)
5. Release wires from wire holder. (See Fig. 2-53)
6. Remove three (3) screws holding the A/C head.

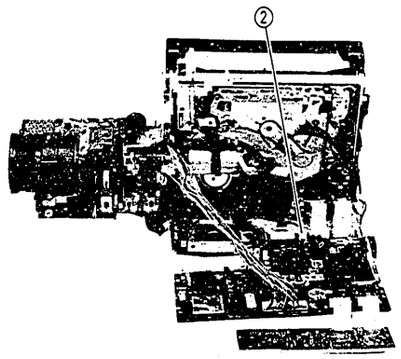



Fig. 2-51 Audio/Control (A/C) Head Removal

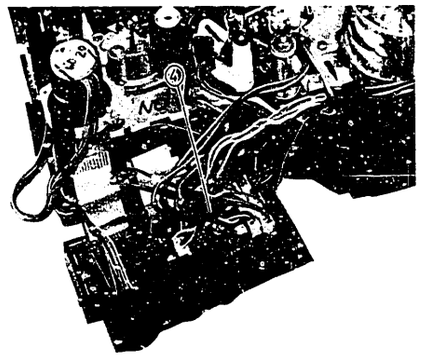



Fig. 2-52 Audio/Control (A/C) Head Removal

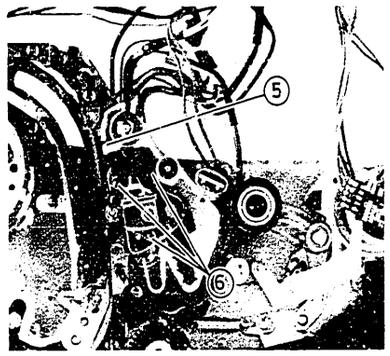



Fig. 2-53 Audio/Control Head (A/C) Head Removal

**Full Erase (FE) Head Removal** (Figs. 2-54, 2-55, 2-56)

1. Open the audio circuit board. (See Fig. 2-17)
2. Disconnect connector CN416. (See Fig. 2-54)
3. Remove the spring between the FE head base and chassis. (See Fig. 2-55)
4. Remove the washer and pull out the FE head base.
5. Remove one (1) screw holding the FE head. (See Fig. 2-56)

Note: Take care of the spring position when reinstalling.



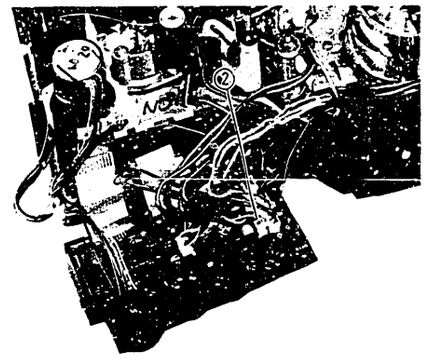



Fig. 2-54 Full/Erase (FE) Head Removal

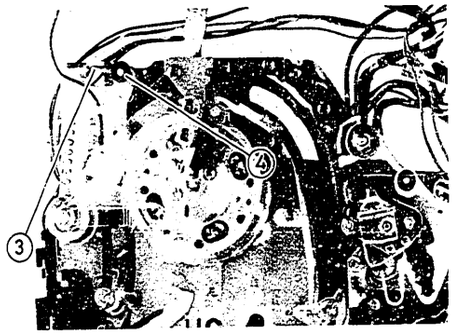



Fig. 2-55 Full Erase (FE) Head Removal

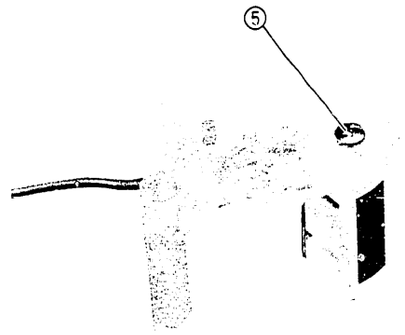



Fig. 2-56 Full Erase (FE) Head Removal

**Supply End Sensor Removal** (Figs. 2-57, 2-58, 2-59, 2-60)

1. Open the audio circuit board. (See Fig. 2-17)
2. Disconnect connector CN123. (See Fig. 2-57)
3. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-58, 2-59)
4. Release one (1) tab. (See Fig. 2-60)

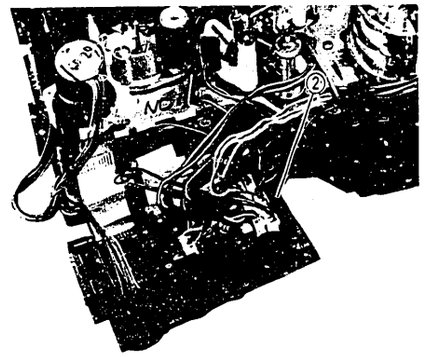



Fig. 2-57 Supply End Sensor Removal

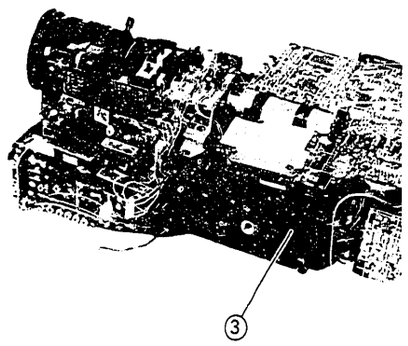



Fig. 2-58 Supply End Sensor Removal

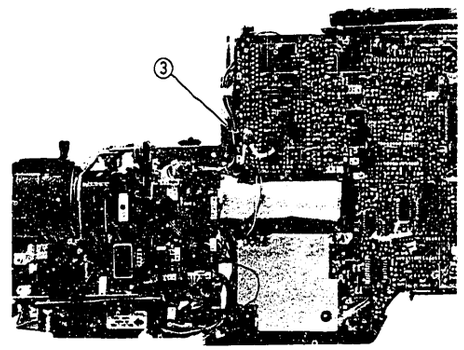



Fig. 2-59 Supply End Sensor Removal

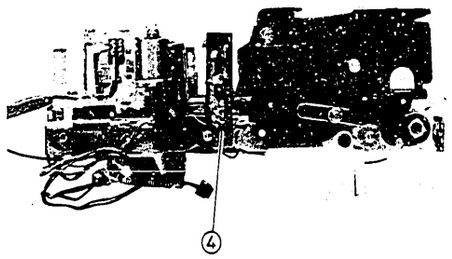



Fig. 2-60 Supply End Sensor Removal

**Take-up End Sensor Removal** (Figs. 2-61, 2-62)

1. Open the audio circuit board. (See Fig. 2-17)
2. Disconnect connector CN124. (See Fig. 2-61)
3. Release one (1) tab and remove the take-up end sensor. (See Fig. 2-62)

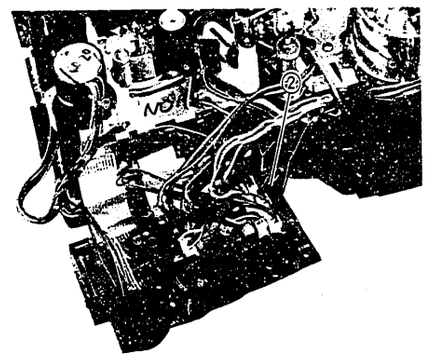



Fig. 2-61 Take-up End Sensor Removal

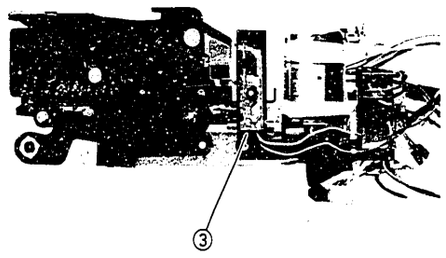



Fig. 2-62 Take-up End Sensor Removal

**Reel Sensor Removal** (Figs. 2-63, 2-64)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Fig. 2-17)
3. Disconnect connector CN119. (See Fig. 2-63)
4. Remove the wires from the wire holders. (See Fig. 2-64)
5. Remove the PB/REC drive arm. (See Fig. 2-105)
6. Remove the slider. (See Page 34)
7. Remove one (1) screw holding the reel sensor.

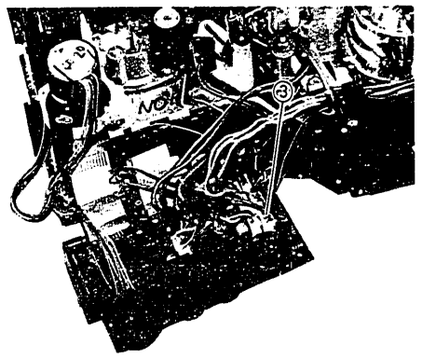



Fig. 2-63 Reel Sensor Removal

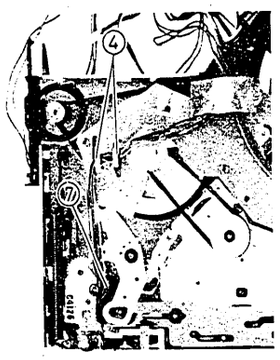



Fig. 2-64 Reel Sensor Removal



**Dew Sensor Removal** (Figs. 2-65, 2-66)

1. Open the audio circuit board. (See Fig. 2-17)
2. Disconnect connector CN120. (See Fig. 2-65)
3. Remove one (1) screw holding the dew sensor. (See Fig. 2-66)

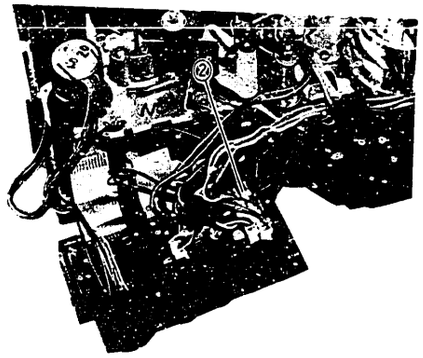



Fig. 2-65 Dew Sensor Removal

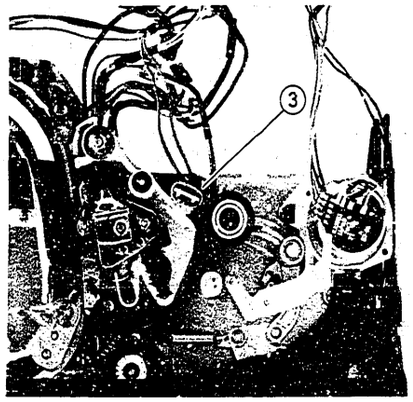



Fig. 2-66 Dew Sensor Removal

**Cassette Holder Switch** (Figs. 2-67, 2-68, 2-69)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Fig. 2-17)
3. Disconnect connector CN121. (See Fig. 2-67)
4. Remove the cassette holder. (See Figs. 2-46, 2-47, 2-48)
5. Remove the wires from the wire holders. (See Fig. 2-68)
6. Remove one (1) screw holding the cassette holder switch. (See Fig. 2-69)

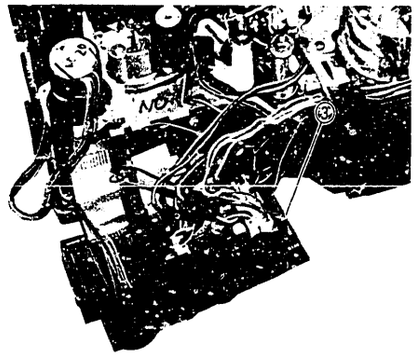


Fig. 2-67 Cassette Holder Switch Removal

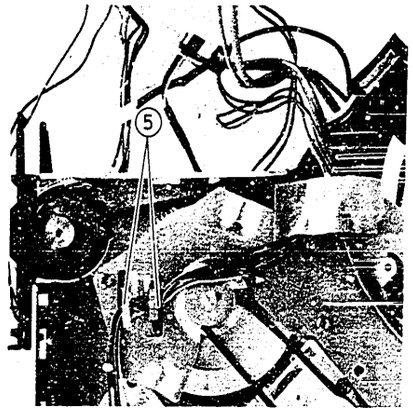



Fig. 2-68 Cassette Holder Switch Removal

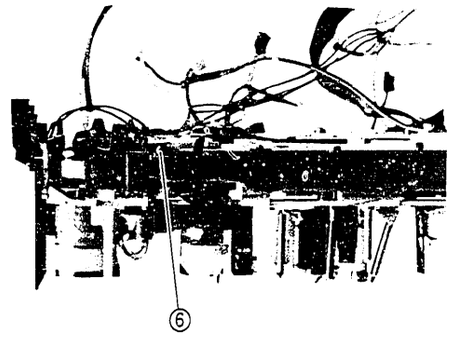



Fig. 2-69 Cassette Holder Switch Removal

**Safety Tab Switch Removal** (Figs. 2-70, 2-71, 2-72)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Fig. 2-17)
3. Disconnect connector CN122. (See Fig. 2-70)
4. Remove the wires form the wire holders. (See Fig. 2-71)
5. Remove one (1) screw holding the safety tab switch. (See Fig. 2-72)

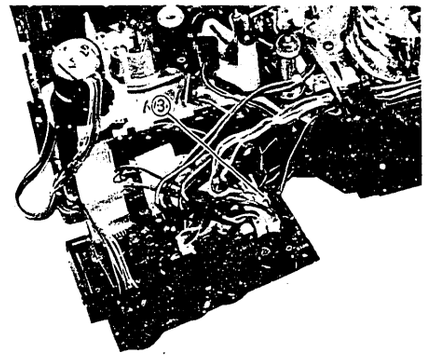


Fig. 2-70 Safety Tab Switch Removal

Fig. 2-71 Safety Tab Switch Removal

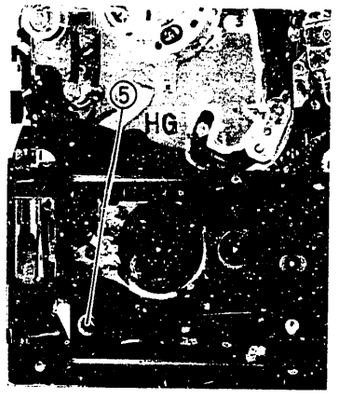


Fig. 2-72 Safety Tab Switch Remova.

**Mechanism State Switch Removal** (Figs. 2-73, 2-74, 2-75)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Fig. 2-17)
3. Disconnect connector CN117. (See Fig. 2-73)
4. Remove one (1) screw holding the mechanism state switch. (See Fig. 2-74)
5. Remove the mechanism state switch holder in the direction of the arrow.
6. Remove the washer and remove the cam gear T. (See Fig. 2-75)
7. Remove one (1) screw holding the mechanism state switch.

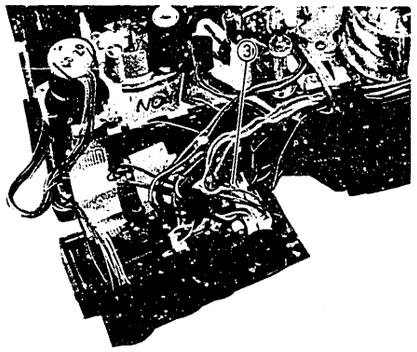


Fig. 2-73 Mechanism State Switch Removal

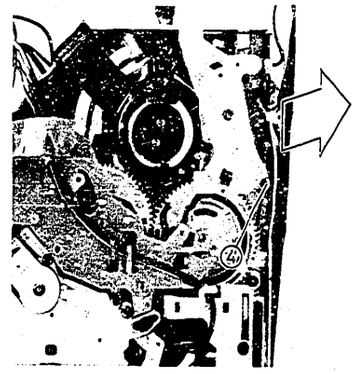


Fig. 2-74 Mechanism State Switch Removal

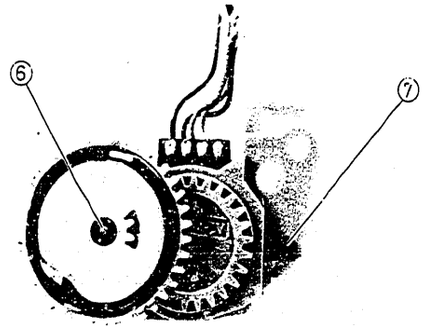


Fig. 2-75 Mechanism State Switch Removal

**End Lamp Removal** (Figs. 2-76, 2-77)

1. Open the audio circuit board. (See Fig. 2-17)
2. Disconnect connector CN125. (See Fig. 2-76)
3. Remove the spring between the chassis and end lamp. (See Fig. 2-77)
4. Remove one (1) screw holding the end lamp.

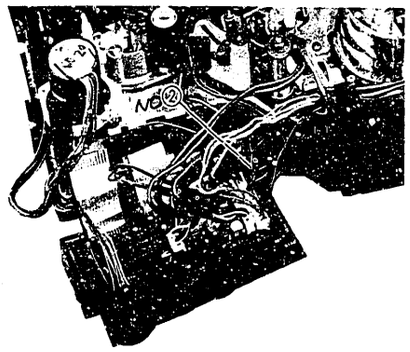


Fig. 2-76 End Lamp Removal

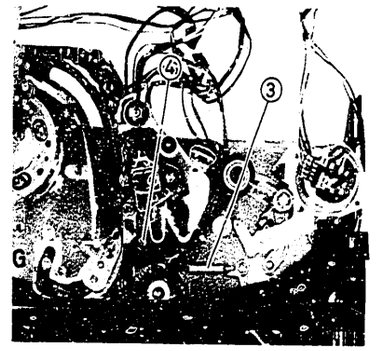


Fig. 2-77 End Lamp Removal

**Lower Cylinder (Cylinder Motor Assembly) Removal** (Figs. 2-78, 2-79)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Disconnect two (2) flat cables (CN613, CN214). (See Fig. 2-78)
3. Remove three (3) screws holding the lower cylinder and cylinder shield. (See Fig. 2-79)

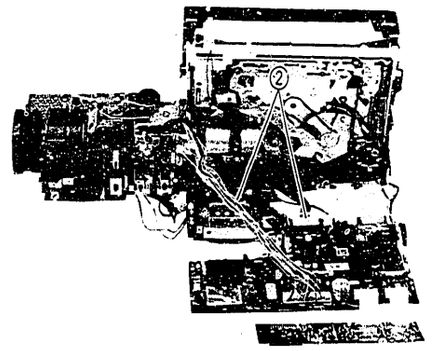


Fig. 2-78 Lower Cylinder (Cylinder Motor) Removal

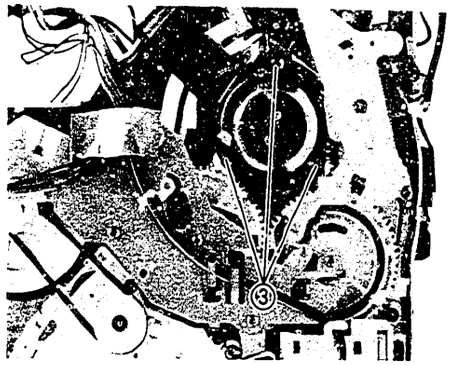


Fig. 2-79 Lower Cylinder (Cylinder Motor) Removal

**Capstan Motor Removal** (Figs. 2-80, 2-81, 2-82, 2-83)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Disconnect connector CN612. (See Fig. 2-80)
3. Remove the belt cover. (See Fig. 2-81)
4. Remove the belt from the capstan motor pulley.
5. Lift the cassette holder. (See Fig. 2-46)
6. Remove two (2) screws holding the capstan motor holder. (See Fig. 2-82)
7. Remove two (2) screws holding the capstan motor. (See Fig. 2-83)

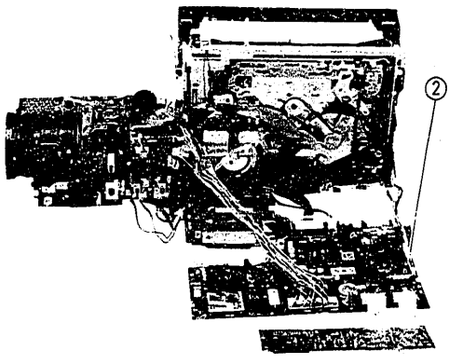


Fig. 2-80 Capstan Motor Removal

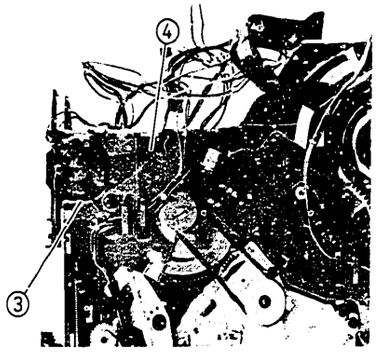


Fig. 2-81 Capstan Motor Removal

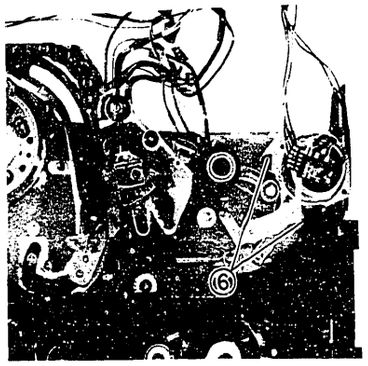


Fig. 2-82 Capstan Motor Removal

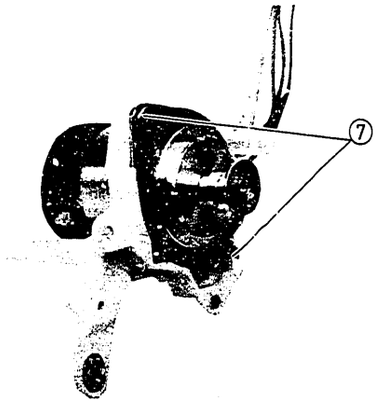


Fig. 2-83 Capstan Motor Removal



**Loading Motor Removal** (Figs. 2-84, 2-85, 2-86)

1. Open the audio circuit board. (See Fig. 2-17)
2. Disconnect connector CN118. (See Fig. 2-84)
3. Remove the wires from the wire holders. (See Fig. 2-85)
4. Remove three (3) screws holding the loading motor block.
5. Remove the belt of the loading motor. (See Fig. 2-86)
6. Remove two (2) screws holding the loading motor.

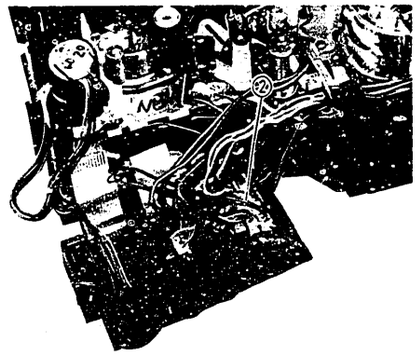


Fig. 2-84 Loading Motor Removal

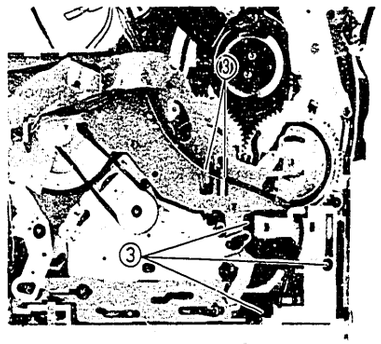


Fig. 2-85 Loading Motor Removal

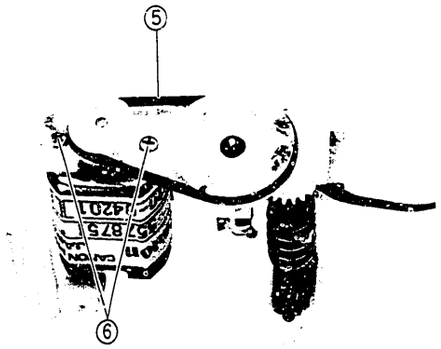


Fig. 2-86 Loading Motor Removal

**Catcher Block Removal** (Figs. 2-87, 2-88)

1. Remove one (1) screws holding the Cylinder motor brush. (See Fig. 2-87)
2. Remove three (3) screws holding the catcher block.
3. Remove three (3) screws holding the cylinder assembly. (See Fig. 2-88)

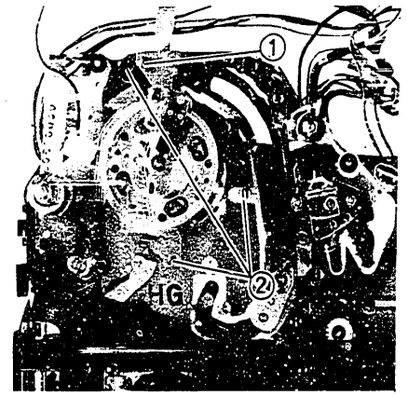


Fig. 2-87 Catcher Block Removal

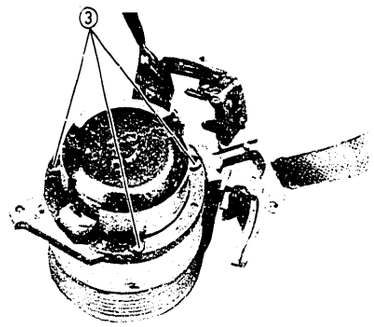


Fig. 2-88 Catcher Block Removal

**Impedance Roller Removal** (Fig. 2-89)

1. Remove the cylinder motor brush. (See Fig. 2-87)
2. Remove one (1) nut and pull out the impedance roller. (See Fig. 2-89)

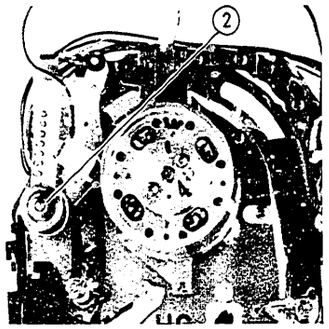



Fig. 2-89 Impedance Roller Removal

**Pressure Roller Arm Removal** (Fig. 2-90)

1. Remove the capstan motor holder. (See Fig. 2-82)
2. Pull out the pressure roller arm. (See Fig. 2-90)

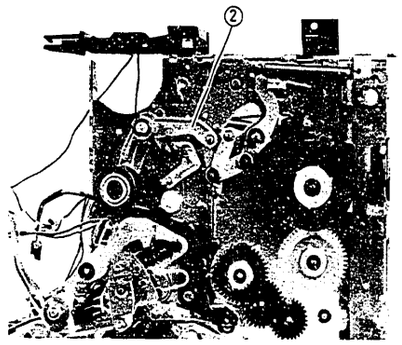



Fig. 2-90 Pressure Roller Arm Removal

**Tension Arm and Tension Band Removal** (Figs. 2-91, 2-92)

1. Remove the cassette holder. (See Figs. 2-67, 2-68, 2-69)
2. Remove one (1) washer. (See Fig. 2-91)
3. Remove the tension spring. (See Fig. 2-92)
4. Remove two (2) screws holding the tension arm and tension band.

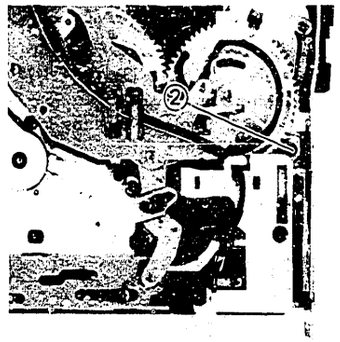



Fig. 2-91 Tension Arm and Tension Band Removal

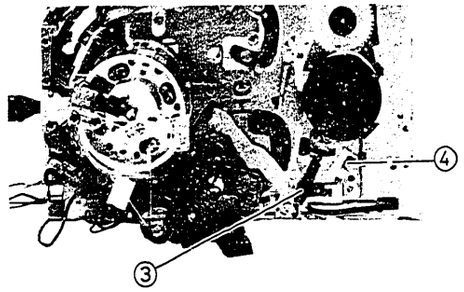



Fig. 2-92 Tension Arm and Tension Band Removal

**Take-up Sub Brake Removal** (Fig. 2-93)

1. Remove the cassette holder. (See Figs. 2-67, 2-68, 2-69)
2. Remove the take-up sub brake spring. (See Fig. 2-93)
3. Release one (1) tab.
4. Pull out the take-up sub brake.

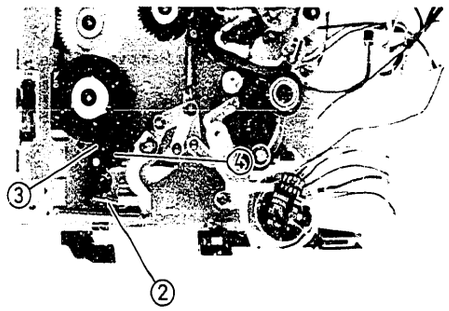



Fig. 2-93 Take-up Sub Brake Removal



**Supply Sub Brake Removal** (Fig. 2-94)

1. Remove the cassette holder. (See Figs. 2-67, 2-68, 2-69)
2. Remove the supply sub brake spring. (See Fig. 2-94)
3. Release one (1) tab.
4. Pull out the supply sub brake.

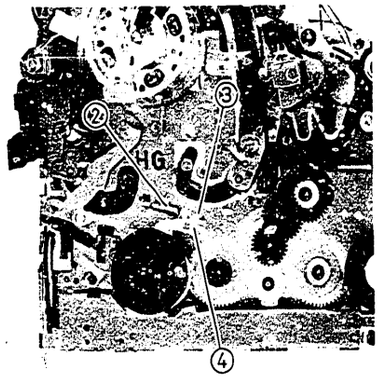



Fig. 2-94 Supply Sub Brake Removal

**Take-up Reel Disk Removal** (Fig. 2-95)

1. Remove the cassette holder. (See Figs. 2-67, 2-68, 2-69)
2. Remove one (1) washer and pull out the take-up reel disk. (See Fig. 2-95)

Note: Take care not to lose the washer in the lower section.

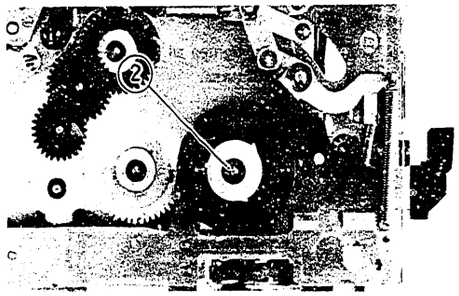



Fig. 2-95 Take-up Reel Disk Removal

**Supply Reel Disk Removal** (Fig. 2-96)

1. Remove the cassette holder. (See Figs. 2-67, 2-68, 2-69)
2. Remove the tension arm and tension band. (See Fig. 2-91, 2-92)
3. Release the supply sub brake. (See Fig. 2-96)
4. Remove one (1) washer and pull out the supply reel disk.

Note: Take care not to lose the washer in the lower section. Reinstall the supply reel disk by the reverse procedure to removal.

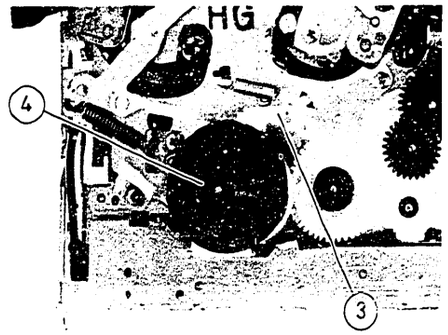



Fig. 2-96 Supply Reel Disk Removal

**Guide Post (1) and Guide Post (2) Removal** (Fig. 2-97)

1. Remove one (1) nut holding the guide post (1).
2. Remove one (1) nut holding the guide post (2).

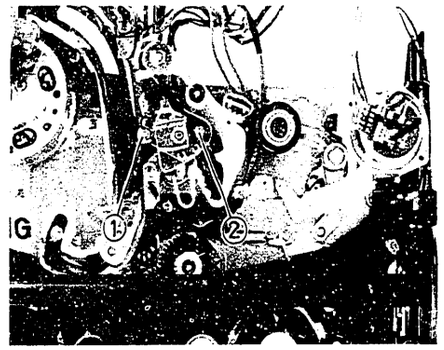



Fig. 2-97 Guide Post (1) and Guide Post (2) Removal

**A/C Head Base Removal** (Fig. 2-98)

1. Remove the A/C head. (See Figs. 2-51, 2-52, 2-53)
2. Remove one (1) nut, two (2) washers and one (1) bearing. (See Fig. 2-98)
3. Pull out the A/C head base.

Note: Reinstall the A/C head base so the A/C head height adjustment nut is positioned 2.5 to 3 mm below the point of the shaft.
After reinstalling, perform the following adjustments.

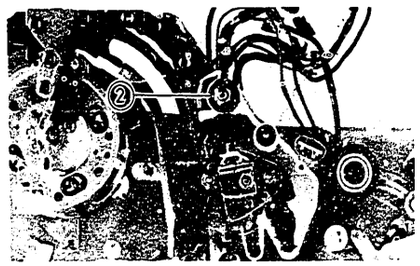



Fig. 2-98 A/C Head Base Removal

**Guide Arm Assembly Removal** (Figs. 2-99)

1. Remove the A/C head. (See Figs. 2-51, 2-52, 2-53)
2. Remove the A/C head base. (See Fig. 2-98)
3. Remove one (1) washer and pull out the guide arm assembly. (See Fig. 2-99)

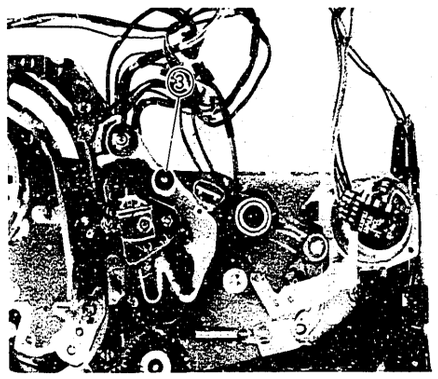



Fig. 2-99 Guide Arm Assembly Removal

**Supply Guide Roller and Take-up Guide Roller Removal** (Fig. 2-100)

1. Remove one (1) hex screw holding the supply guide roller.
2. Remove the guide roller cap.
3. Remove one (1) hex screw holding the take-up guide roller.

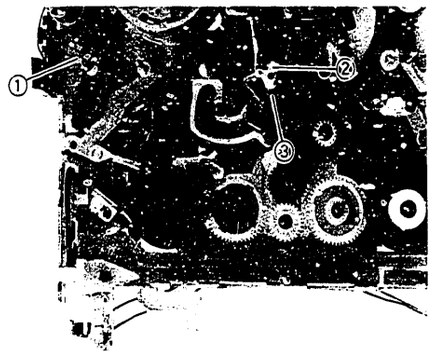



Fig. 2-100 Supply Guide Roller and Take-up Guide Roller Removal

**Cam Gear Plate Removal** (Fig. 2-101)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the wires from wire holders. (See Fig. 2-101)
3. Remove the belt cover.
4. Remove five (5) screws holding the cam gear plate.

Note: When reinstalling, tighten all the screws and then loose them by 3/4 turns.

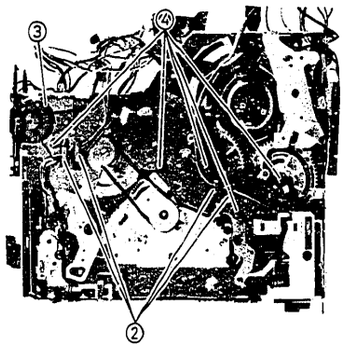



Fig. 2-101 Cam Gear Plate Removal



**Capstan Flywheel Removal** (Figs. 2-102, 2-103)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-101)
3. Remove two (2) belts from the capstan flywheel. (See Fig. 2-102)
4. Remove one (1) washer and pull out the capstan flywheel. (See Fig. 2-103)

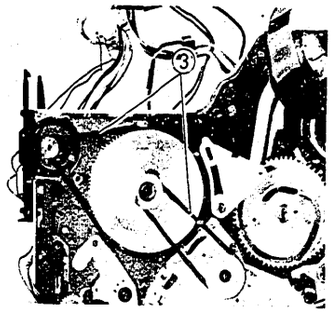



Fig. 2-102 Capstan Flywheel Removal

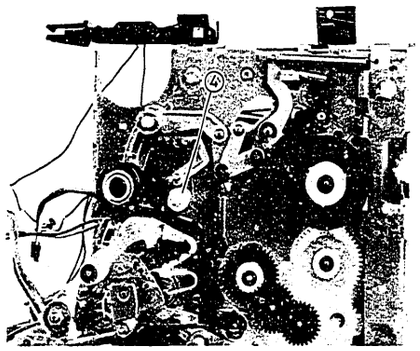



Fig. 2-103 Capstan Flywheel Removal

**A/C Head Control Arm Removal** (Fig. 2-104)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-101)
3. Pull out the A/C head control arm. (See Fig. 2-104)

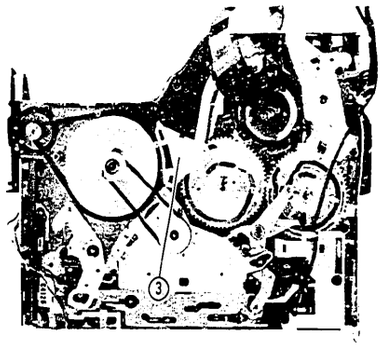



Fig. 2-104 A/C Head Arm Removal

**PB/REC Drive Arm Removal** (Fig. 2-105)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the (1) washer and pull out the PB/REC drive arm. (See Fig. 2-105)

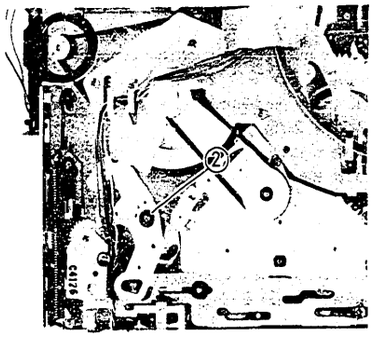



Fig. 2-105 PB/REC Drive Arm Removal

**Cam Gear Arm (1) and (2) Removal (Fig. 2-106)**

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-101)
3. Release one (1) tap and remove the idler drive arm.
4. Pull out the cam gear arm (1) and (2). (See Fig. 2-106)

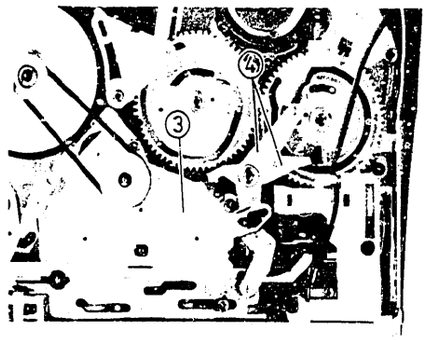



**Fig. 2-106 PB/REC Drive Arm Removal**

**Supply and Take-up Loading Cam Gears Removal** (Fig. 2-107)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the mechanism state switch holder. (See Figs. 2-73, 2-74, 2-75)
3. Remove the loading motor block. (See Fig. 2-85)
4. Remove the cam gear plate. (See Fig. 2-101)
5. Remove the A/C head control arm. (See Fig. 2-104)
6. Remove the cam gear arm (1) and (2). (See Fig. 2-106)
7. Turn the loading cam gear to set the guide roller to the loading state. (See Fig. 2-107)
8. Remove two (2) E rings and pull out the loading cam gear.

Note: After reinstalling the loading cam gears, adjust the mechanism state switch.

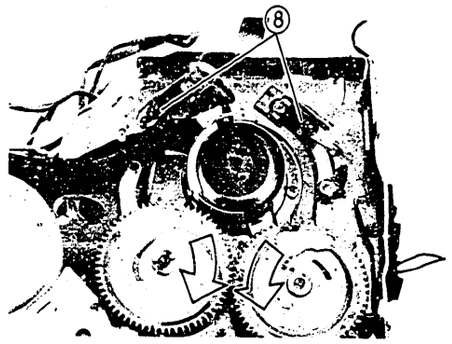



**Fig. 2-107 Supply and Take-up Loading Cam Gear Removal**

**Guid Roller Base Removal** (Fig. 2-108)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the loading motor block. (See Fig. 2-85)
3. Remove the mechanism state switch holder. (See Figs. 2-73, 2-74, 2-75)
4. Remove the cam gear plate. (See Fig. 2-101)
5. Remove the cam gear arm (1) and (2). (See Fig. 2-106)
6. Remove the loading cam gear. (See Fig. 2-107)
7. Remove two (2) screws holding the limit plate and guide roller base. (See Fig. 2-108)

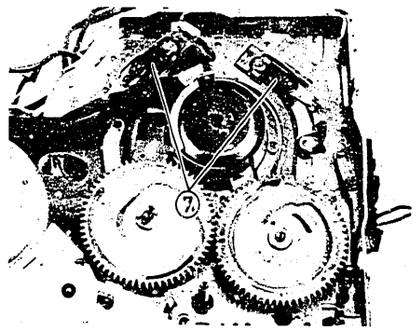



**Fig. 2-108 Guide Roller Base Removal**

**Slider Removal** (Fig. 2-109)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-101)
3. Remove the PB/REC drive arm. (See Fig. 2-105)
4. Remove the cam gear arm (1) and (2). (See Fig. 2-106)
5. Remove one (1) screw and one (1) washer holding the slider. (See Fig. 2-109)



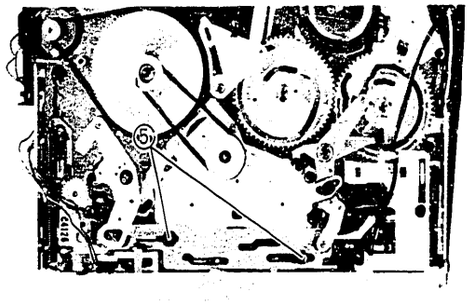



**Fig. 2-109 Slider Removal**

**Reel Gear Block Removal** (Fig. 2-110)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-101)
3. Remove the PB/REC drive arm. (See Fig. 2-105)
4. Remove the cam gear arm (1) and (2). (See Fig. 2-106)
5. Remove the slider. (See Fig. 2-109)
6. Remove the belt from the reel gear block. (See Fig. 2-110)
7. Remove three (3) screws holding the reel gear block.

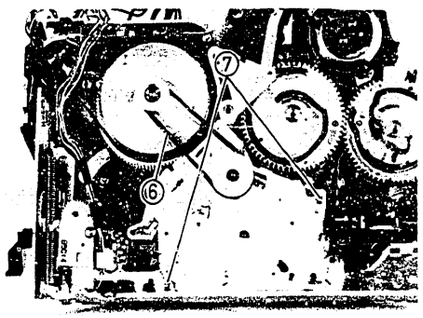



**Fig. 2-110 Reel Gear Block Removal**

**Main Brake Arm Removal** (Fig. 2-111)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-101)
3. Remove the PB/REC drive arm. (See Fig. 2-105)
4. Remove the cam gear arm (1) and (2). (See Fig. 2-106)
5. Remove the slider. (See Fig. 2-109)
6. Remove the reel gear block. (See Fig. 2-110)
7. Pull out the main brake drive arm. (See Fig. 2-111)

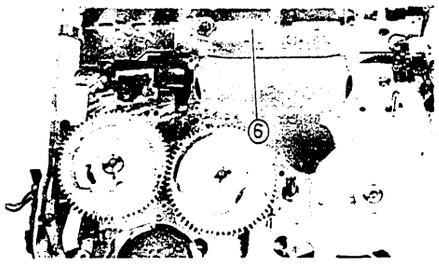



**Fig. 2-111 Main Brake Arm Removal**

**Damper Removal** (Fig. 2-112)

1. Open the main circuit board and function switch circuit Board. (See Figs. 2-11, 2-12)
2. Remove one (1) screw holding the damper. (See Fig. 2-112)

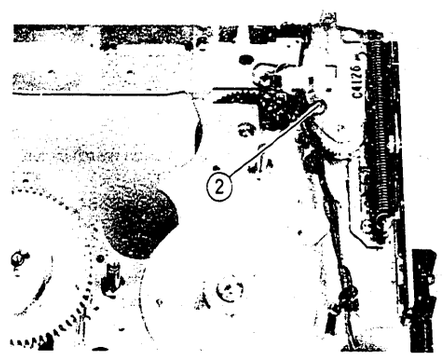



**Fig. 2-112 Damper Removal**

**Up Slider Removal** (Fig. 2-113)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-101)
3. Remove the PB/REC drive arm. (See Fig. 2-105)
4. Remove the cam gear arm. (See Fig. 2-106)
5. Remove the slider. (See Fig. 2-109)
6. Remove the damper. (See Fig. 2-112)
7. Remove the up slider spring. (See Fig. 2-113)
8. Remove one (1) screw holding the lock holder.
9. Remove the up slider in the direction of the arrow.

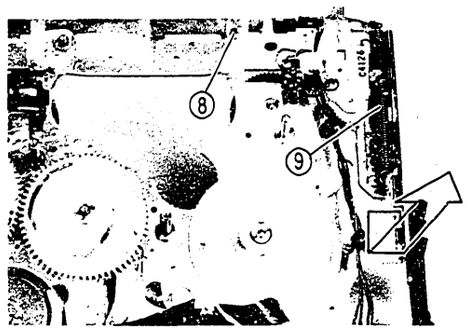



Fig. 2-113 Up Slider Removal

**Quick Slider Removal** (Fig. 2-113-1)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the loading motor block. (See Figs. 2-84, 2-85)
3. Remove the cam gear plate. (See Fig. 2-101)
4. Remove the PB/REC drive arm. (See Fig. 2-105)
5. Remove the cam gear arm (1) and (2). (See Fig. 2-106)
6. Remove two (2) screws holding the quick slider. (See Fig. 2-113-1)

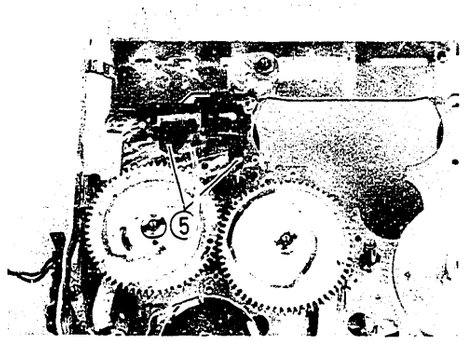



Fig. 2-113-1 Quick Slider Removal

**Saticon Removal** (Figgs. 2-114, 2-115, 2-116)

1. Remove the camera switch circuit board. (See Figs. 2-28, 2-29, 2-30)
2. Remove the preamp circuit board. (See Figs. 2-32, 2-33, 2-34, 2-35, 2-36)
3. Strip the saticon shield. (See Fig. 2-114)
4. Disconnect saticon socket. (See Fig. 2-115)
5. Remove four (4) screws holding the saticon cover.
6. Release four (4) tabs and remove the bias light. (See Fig. 2-116)

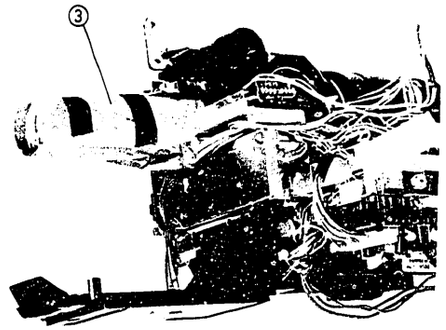



Fig. 2-114 Saticon Removal

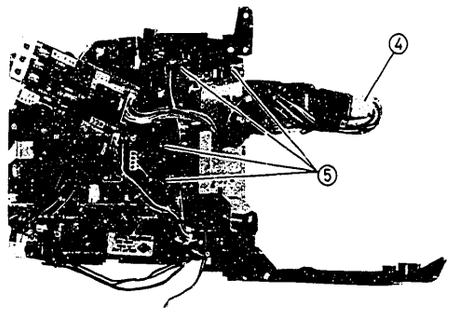



Fig. 2-115 Saticon Removal



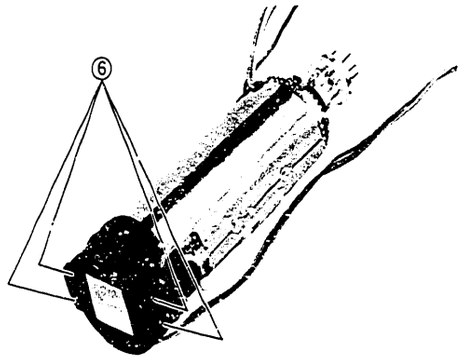



Fig. 2-116 Saticon Removal

## LENS BLOCK

**Lens Block Removal** (Figs. 2-117, 2-228, 2-119, 2-120)

1. Remove the camera switch circuit board. (See Figs. 2-28, 2-29, 2-30)
2. Remove the preamp circuit board. (See Figs. 2-32, 2-33, 2-34, 2-35, 2-36)
3. Remove the EVF connector. (See Figs. 2-38, 2-39, 2-40)
4. Remove four (4) screws holding the saticon cover. (See Fig. 2-117)
5. Remove the saticon cover.
6. Remove the ground lead.
7. Remove four (4) screws holding the lens block. (See Figs. 2-118, 2-119, 2-120)

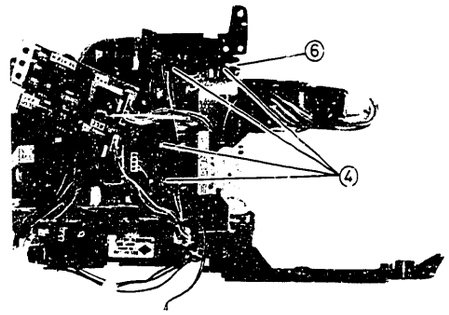



Fig. 2-117 Lens Block Removal

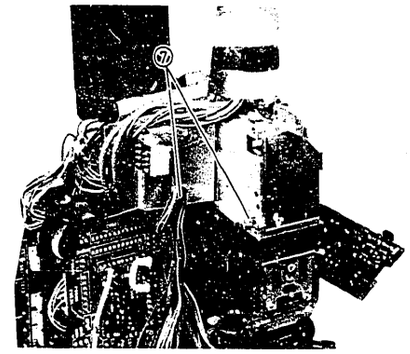



Fig. 2-118 Lens Block Removal

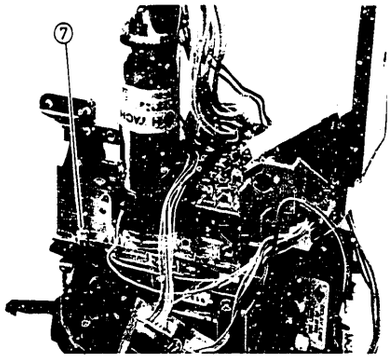



Fig. 2-119 Lens Block Removal

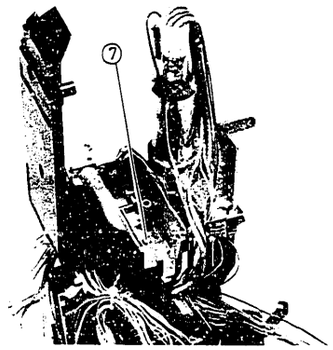



Fig. 2-120 Lens Block Removal

**Auto Focus Circuit Board Removal** (Figs. 2-121, 2-122)

1. Remove the lens block as previously given. (See Figs. 2-117, 2-118, 2-119, 2-120)
2. Remove two (2) screws holding the auto focus circuit board. (See Fig. 2-121)
3. Unsolder thirteen (13) points on the auto focus circuit board. (See Fig. 2-122)

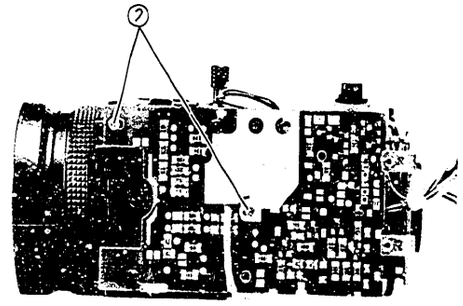



Fig. 2-121 Auto Focus Circuit Board Removal

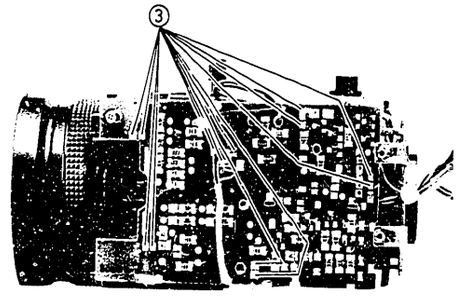



Fig. 2-122 Auto Focus Circuit Board Removal

**Focus Switch Circuit Board Removal** (Figs. 2-123, 2-124)

1. Remove the lens block as previously given.
2. Unslider two (2) points on the auto focus circuit board. (See Fig. 2-123)
3. Remove two (2) screws holding the focus switch circuit board. (See Fig. 2-124)

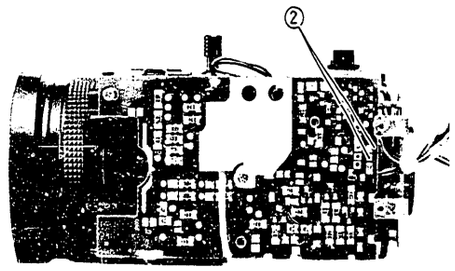



Fig. 2-123 Focus Switch Circuit Board Removal



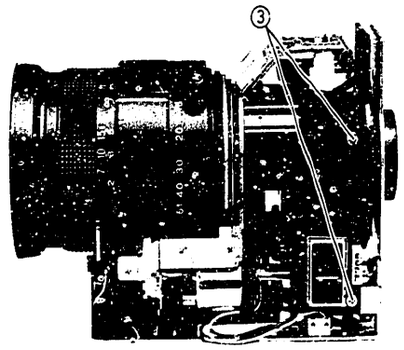



Fig. 2-124 Focus Switch Circuit Board Removal

**Relay Lens Block Removal** (Figs. 2-125, 2-126)

1. Remove the lens block as previously given.
2. Remove the focus switch circuit board. (See Figs. 2-123, 2-124)
3. Remove three (3) screws holding the relay lens. (See Fig. 2-125)
4. Remove two (2) screws holding the iris block. (See Fig. 2-126)

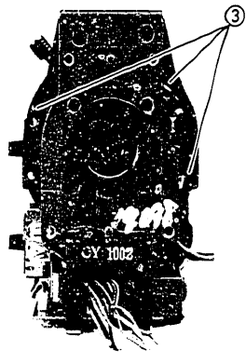



Fig. 2-125 Relay Lens Block Removal

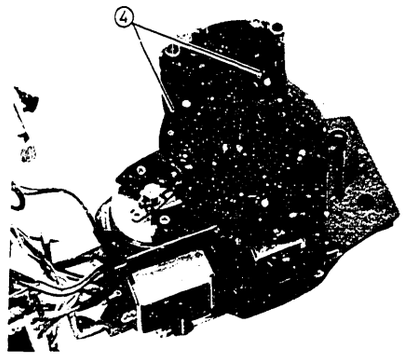



Fig. 2-126 Relay Lens Block Removal

**Zoom Motor Removal** (Figs. 2-127, 2-128)

Note: A special screwdriver (tool) is required to remove the zoom motor.

1. Remove the lens block as previously given.
2. Remove two (2) screws holding the zoom motor. (See Figs. 2-126, 2-128)

Note: Take care not to scratch the zoom ring with a screwdriver, etc. when removing the screws from the front.

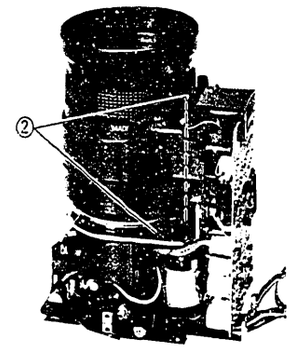



Fig. 2-127 Zoom Motor Removal

Fig. 2-128 Zoom Motor Removal

**Auto Focus Motor Removal** (Figs. 2-129, 2-130)

1. Disconnect connector CN2 on the auto focus circuit board.
2. Remove two (2) screws holding the auto focus motor. (See Fig. 2-130)

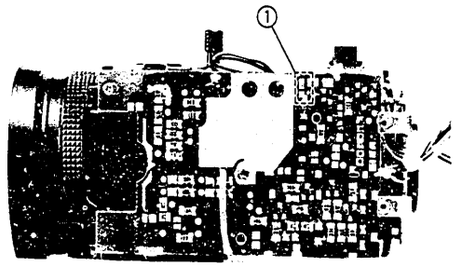



Fig. 2-129 Auto Focus Motor Removal

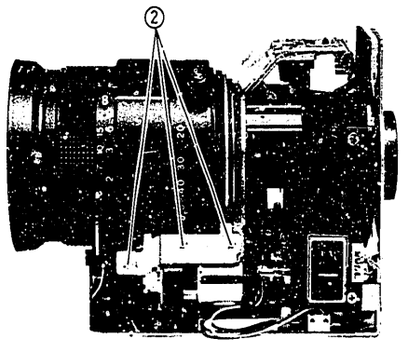



Fig. 2-130 Auto Focus Motor Removal

## ELECTRONIC VIEWFINDER (EVF)

Remove the electronic viewfinder (EVF) as previously given.

**Bottom Cover Removal** (Fig. 2-131)

1. Turn the microphone ring in the direction of the arrow. (See Fig. 2-131)
2. Remove five (5) screws holding the bottom cover.

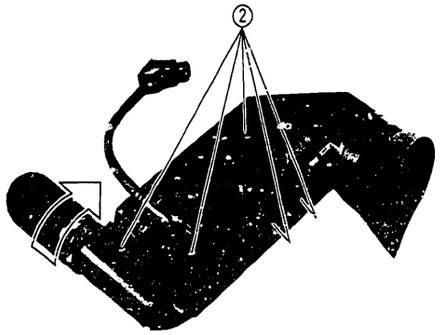



Fig. 2-131 Bottom Cover Removal

**Electronic Viewfinder (EVF) Circuit Board Removal** (Figs, 2-132, 2-133)

1. Remove the bottom cover. (See Fig. 2-131)
2. Pull out the electronic viewfinder (EVF) circuit board, CRT and mic jack circuit board in the direction of the arrow. (See Fig. 2-232)
3. Disconnect two (2) connectors (CN822, CN003). (See Fig. 2-133)

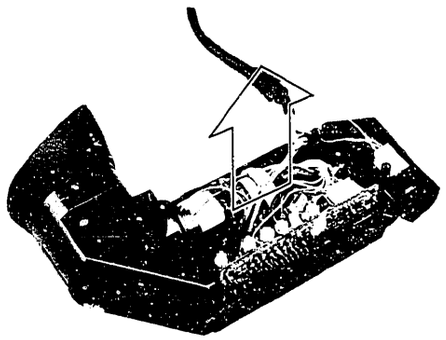


Fig. 2-132 Electronic Viewfinder (EVF) Circuit Board Removal



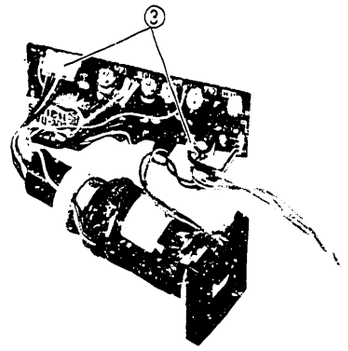



Fig. 2-133 Electronic Viewfinder (EVF) Circuit Board Removal

**Mic Jack Circuit Board Removal** (Fig. 2-134)

1. Remove the bottom cover. (See Fig. 2-131)
2. Disconnect connector CN023. (See Fig. 2-134)

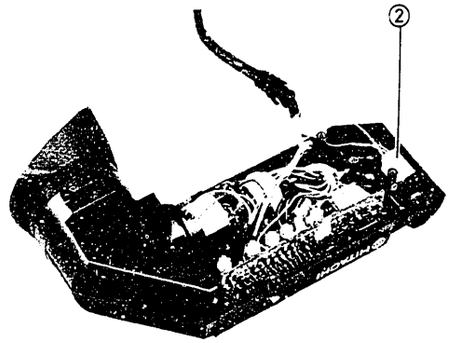



Fig. 2-134 Mic Jack Circuit Board Removal

**CRT Removal** (Figs. 2-135, 2-136)

1. Remove the bottom cover. (See Fig. 2-131)
2. Remove the EVF circuit board. (See Figs. 2-132, 2-133)
3. Press the CRT top cover to release the locking tabs and CRT top cover. (See Fig. 2-135)
4. Remove the indication circuit board and CRT frame in the direction of the arrow. (See Fig. 2-136)
5. Remove one (1) screw holding the deflection coil.
6. Remove the deflection coil in the direction of the arrow.
7. Remove the CRT frame in the deflection of the arrow.

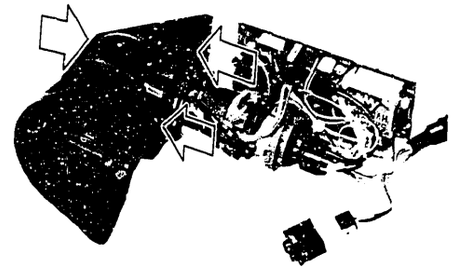


Fig. 2-135 CRT Removal

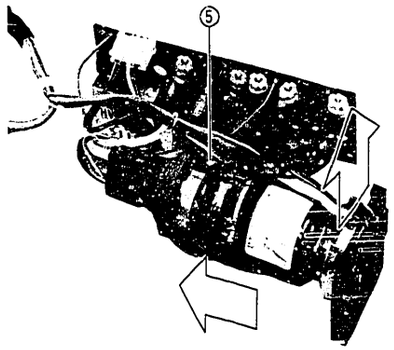



Fig. 2-136 CRT Removal

## AC ADAPTER/CHANGER

**Rear Case Removal** (Figs. 2-137, 2-138)

1. Remove four (4) screws holding the rear case. (See Fig. 2-137)
2. Open the rear case in the direction of the arrow.
3. Remove one (1) screw holding the battery sense switch circuit board. (See Fig. 2-138)
4. Remove one (1) screw holding the charge terminal circuit board.

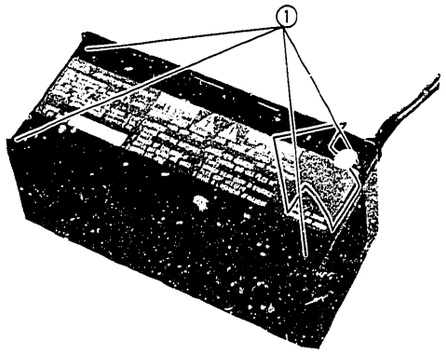



Fig. 2-137 Rear Case Removal

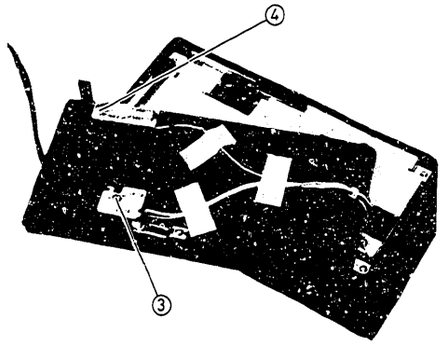



Fig. 2-138 Rear Case Removal

**Shield Cover Removal** (Fig. 2-139)

1. Remove the rear case. (See Figs. 2-137, 2-138)
2. Unsolder two (2) points. (See Fig. 2-139)

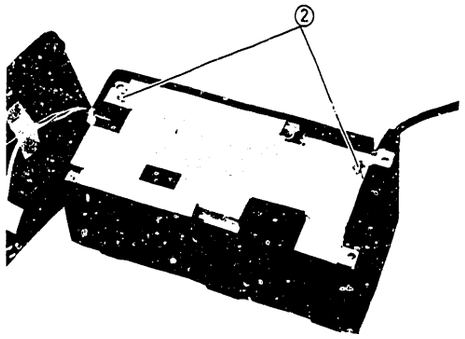



Fig. 2-139 Shield Cover Removal

**Front Case Removal** (Figs. 2-140, 2-141, 2-142)

1. Remove the rear case. (See Figs. 2-137, 2-138)
2. Remove the shield cover. (See Fig. 2-139)
3. Remove one (1) screw holding the regulator circuit board. (See Fig. 2-140)
4. Disconnect connector CN51.
5. Remove one (1) screw holding the camera sense switch. (See Fig. 2-141)
6. Remove two (2) screws holding the front case. (See Fig. 2-142)

Remove the shield case and regulator circuit board.

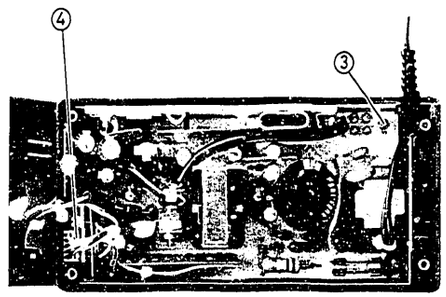



Fig. 2-140 Front Case Removal



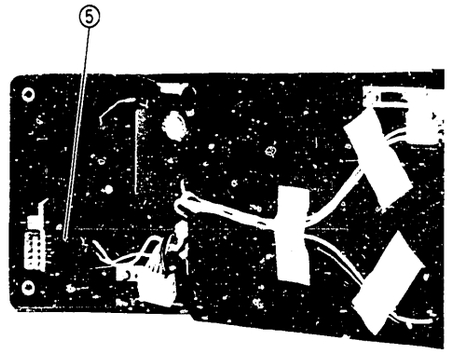



Fig. 2-141 Front Cover Removal

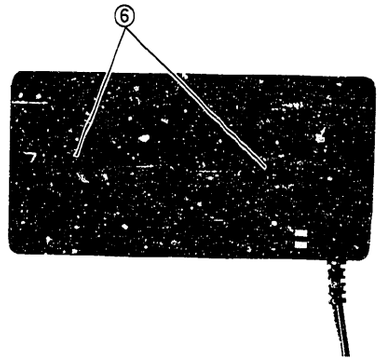



Fig. 2-142 Front Cover Removal

**Regulator Circuit Board Removal** (Fig. 2-143)

1. Remove the rear case. (See Figs. 2-137, 2-138)
2. Remove the shield cover. (See Fig. 2-139)
3. Remove the front case. (See Figs. 2-140, 2-141, 2-142)
4. Remove two (2) screws holding the regulator circuit board. (See Fig. 2-143)
5. Remove the regulator circuit board.

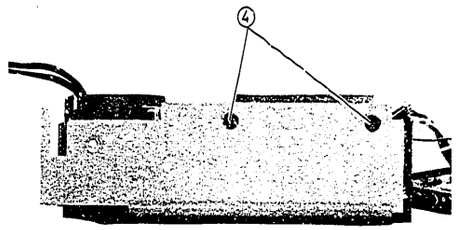



Fig. 2-143 Regulator Circuit Board Removal

**Camera/Charge Switch Circuit Board Removal** (Figs. 2-144, 2-145)

1. Remove the rear case. (See Figs. 2-137, 2-138)
2. Remove the shield cover. (See Fig. 2-139)
3. Remove the front case. (See Figs. 2-140, 2-141, 2-143)
4. Pull out the camera/charge switch circuit board shield. (See Fig. 2-144)
5. Release one (1) tab of the camera/charge switch circuit board holder. (See Fig. 2-145)

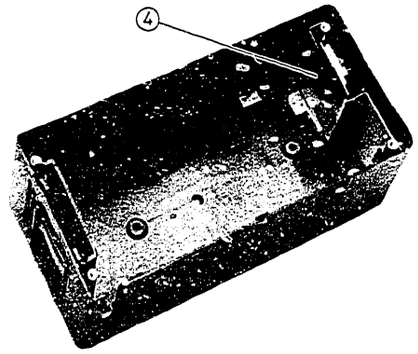



Fig. 2-144 Camera/Charge Sw Circuit Board Removal

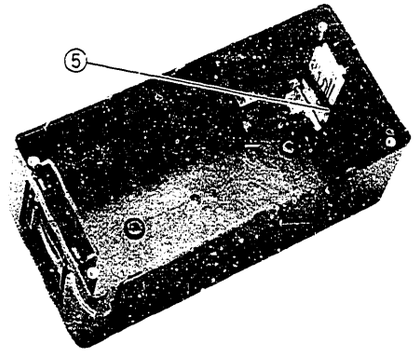



Fig. 2-145 Camera/Charge Switch Circuit Board Removal

**Battery Sense Switch Circuit Board Removal** (Fig. 2-146)

1. Open the rear case. (See Fig. 2-137)
2. Unsolder two (2) points. (See Fig. 2-146)
3. Remove one (1) screw holding the battery sense switch circuit board.

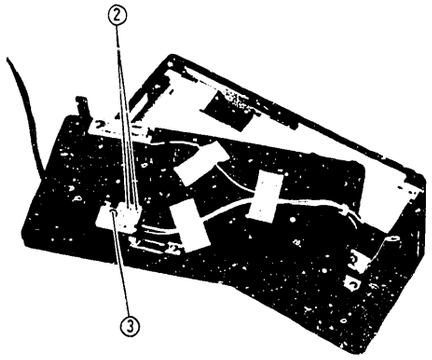



Fig. 2-145 Battery Sense Sw Circuit Board Removal

**Charge Terminal Circuit Board Removal** (Fig. 2-147)

1. Open the rear case. (See Fig. 2-137)
2. Unsolder two (2) points. (See Fig. 2-147)
3. Remove one (1) screw holding the charge terminal circuit board.

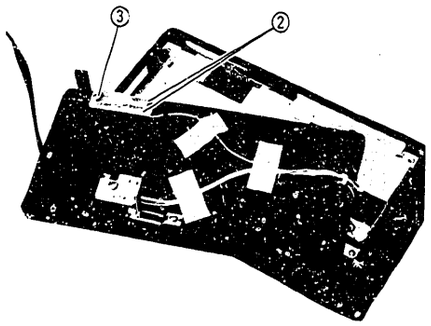


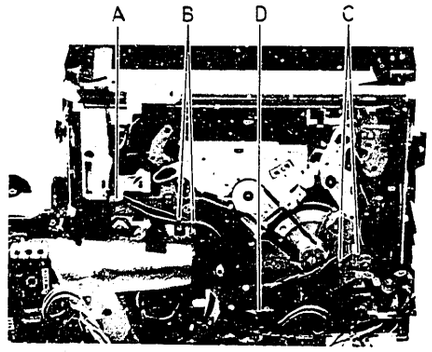

Fig. 2-147 Charge Terminal Circuit Board Removal



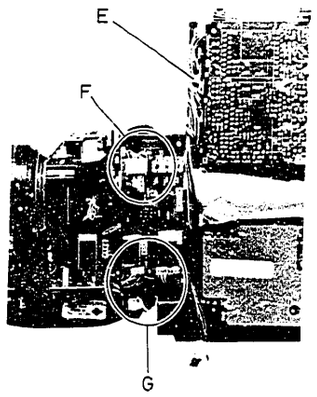
## WIRE LAYOUT DIAGRAMS

Lay the wires out as follows when assembling the unit. If the layout is incorrect, it may cause a disconnection, faulty contact and noise.

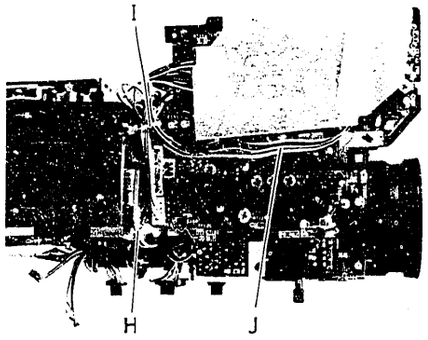
(A) Hold the wires of CN118 and CN112 by the wire retainer on the loading motor assembly.
(B) Hold the wires of CN118 and CN112 by the wire retainer on the cam gear plate.
(C) Hold the wires of CN119 and CN121 by the wire retainer on the cam gear plate.
(D) Bundle the wires of CN118, CN119, CN121 and CN122 with a bead band and fix them together with the cam gear plate.




(E) Hold the wires of CN1501 and CN1602 by the wire retainer.
(F) Pass the wires of CN1602 through the back of the camera switch circuit board.
(G) Pass the wires of CN1619, CN1607, CN1506, CN018 and CN1520 through the back of the camera switch circuit board.

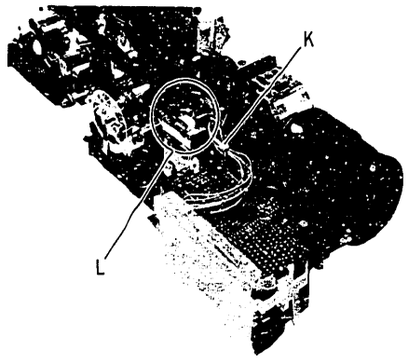



(H) Bundle the wires of CN1316, CN018 and CN619 with a bead band.
(I) Bundle the wires of CN1509, CN017, CN1215 and CN1316 with a bead band.
(J) Lay out the wires of CN017 without any slack.

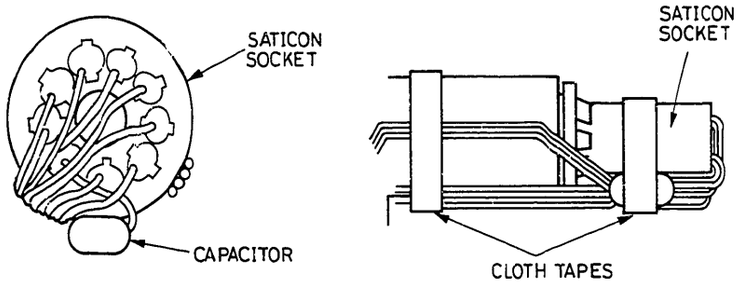


(K) Bundle the wires of CN1005 and CN1525 with a bead band.

(L) Pass the wires of CN1501, CN1005, CN1607, CN1011, CN1012 and CN1013 under the heat sink of the 8V regulator circuit board.




(M) Fix the wires of CN1012 and CN1013 and the capacitor for the Saticon using cloth tape at the positions shown in Fig. 2-11.



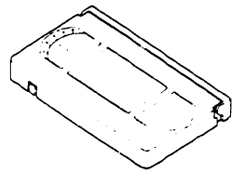
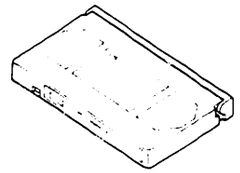
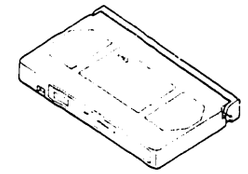
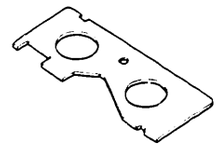
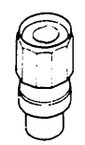
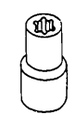
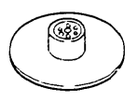
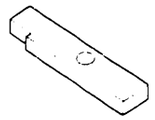
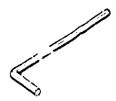
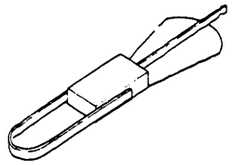
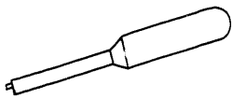
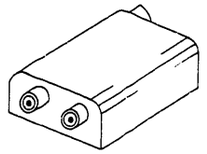
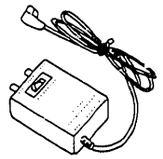
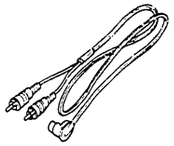






## ADJUSTMENT

### SERVICING JIGS AND TOOLS

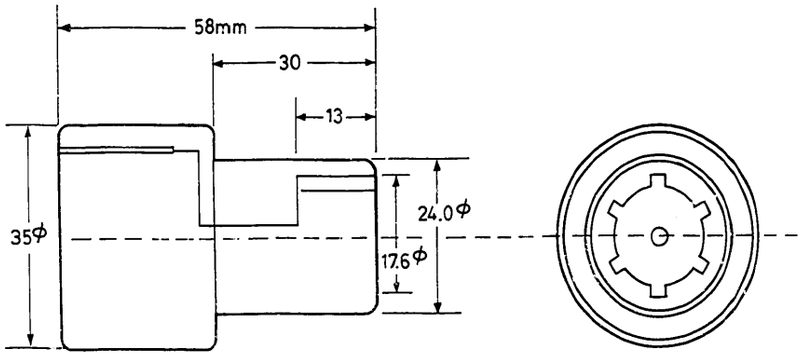
| | | |
|---|---|---|
| 1. Back Tension Meter<br>Parts No. 7099004<br>  | 2. NTSC Alignment Tape<br>Parts No. 7099046<br>  | 3. 30 HMP-2<br>Parts No. 7099089<br>  |
| 4. Master Plane<br>Parts No. 7099041<br>  | 5. Torque Gauge<br>Parts No. 7099039<br>  | 6. Torque Gauge Adapter<br>Parts No. 7099198<br>  |
| 7. Dummy Reel<br>Parts No. 7099043<br>  | 8. Reel Disk Height Jig<br>Parts No. 7099038<br>  | 9. 0.9 mm Hexagonal Wrench<br>  |
| 10. Fan Type Tension Gauge<br>  | 11. Back Focus Adjustment Driver<br>Parts No. 7099199<br>  | 12. AV Input Adapter<br>VM-CH20A<br>  |
| 13. RF Converter Unit<br>VM-RF20A<br>  | 14. AV Output Cable<br>VM-CH25A<br>  | |

### Service Parts

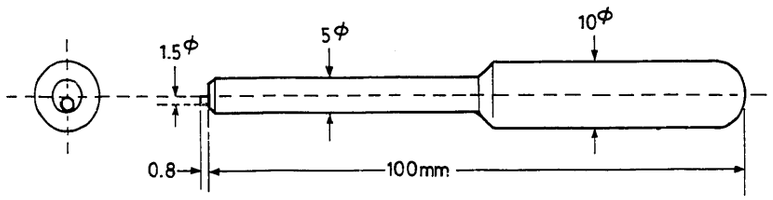
| No. | MODEL | PARTS No. |
|---|---|---|
| 12 | VM-CH20A | 5659991 |
| 13 | VM-RF20A | 7095042 |
| 14 | VM-CH25A | 5855161 |

NEW SERVICE JIG AND TOOLS SPECIFICATIONS

| PARTS NO. | DESCRIPTION | MODEL |
|---|---|---|
| 7099198 | ADAPTOR JIG FOR TORQUE GAUGE | VM-2000 |




| PARTS NO. | DESCRIPTION | MODEL |
|---|---|---|
| 7099199 | BACKFOCUS ADJUSTING DRIVER | VM-2000 |






## MECHANICAL ADJUSTMENT

### 1. MECHANISM STATE SWITCH ADJUSTMENT

**Loading Cam Gear (Supply/Take-up) Adjustment (Fig. 3-1)**

Be sure to perform this adjustment after replacing the Loading Cam Gear (Supply/Take-up), before adjusting the Mechanism State Switch.

1. Check that marking (1) on the supply loading cam gear and the marking on the take-up loading gear aligned. If they are not aligned, reassemble the loading cam gears.

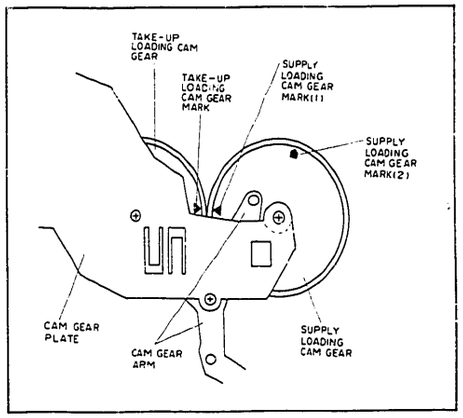

TAKE-UP LOADING CAM GEAR
TAKE-UP LOADING CAM GEAR MARK
SUPPLY LOADING CAM GEAR MARK(1)
SUPPLY LOADING CAM GEAR MARK(2)
CAM GEAR PLATE
CAM GEAR ARM
SUPPLY LOADING CAM GEAR

Fig. 3-1

**Mechanism State Switch Adjustment (Fig. 3-2)**

Be sure to oerform this adjustment after replacing the mechanism state switch and loading cam gears (supply/take-up).

1. Assemble the mechanism state switch and cam gear T so marking (1) on the mechanism state switch and marking (1) on cam gear T are aligned. (See Fig. 3-2 (A) )
2. Turn cam gear T in the direction of the arrow so that marking (1) on the mechanism state switch and marking (1) on the switch holder are aligned. (See Fig. 3-2 (B) )
3. Check that the loading cam gear adjustment is performed correctly.
4. Assembly the mechanism state switch holder into the chassis so that marking (2) on cam gear T and marking (2) on the supply loading cam gear are aligned.
   Check that marking (2) on the mechanism state switch and marking (2) on the switch holder are aligned at this time. (See Fig. 3-2 (C) ) If they are not aligned, readjust the mechanism state switch.

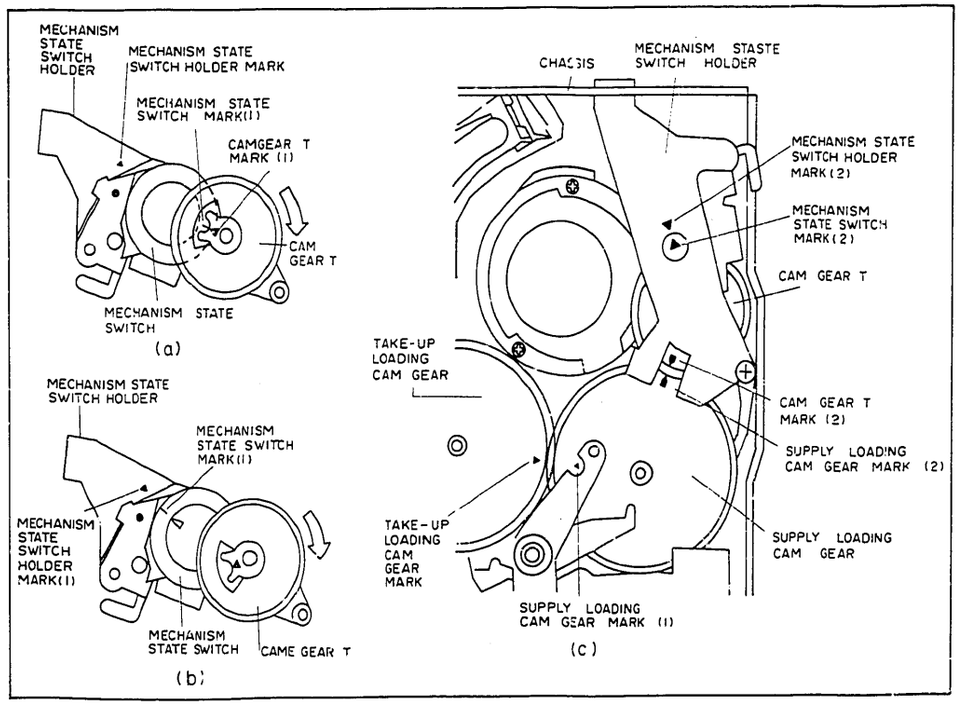



Fig. 3-2

## 2. TAPE TRANSPORT SYSTEM COMPONENTS CHECK/ ADJUSTMENT

The tape transport system is the path from the supply reel to the take-up reel via the video head. The tape transport components, especially the components which come into direct contact which the tape, should be tape kept clean without damage, dust and oil, etc. adhering to the contact surfaces. The tape transport system is adjusted before shipment from the factory, so when any transport components are replaced, the transport system is stabilized by correctly adjusting the new components.

### Reel Disk Height Adjustment (Fig. 3-3)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the reel disk.
3. Check that the top of the reel disk is positioned between sections A and B of the reel disk height jig.
4. When the top of the reel disk is positioned between section A and B, adjust the number of the spacers (2 types: 0.25 mm and 0.5 mm in thick) at the bottom of the reel disk.

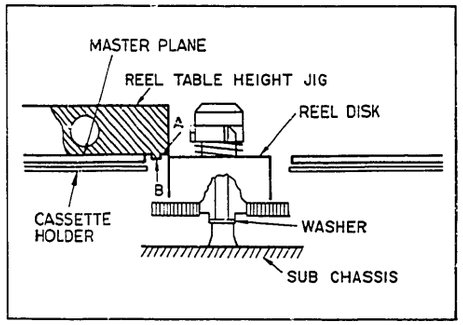



Fig. 3-3

### Tension Pole Position/Tension Adjustment

### Position Adjustment (Fig. 3-4)

1. Set the tension spring to position "B" on the spring holder.
2. Cover up the supply tape-sensor photocell located midway on the left side of the tape mechanism.
3. Place instrument in the "play" mode.
4. After loading is complete, loosen the screw holding the tension band holder. Then, slide the holder and adjust so that the clearance between section A of the supply end sensor holder and the tension arm is 0.6 to 1.2 mm.
5. Tighten screw to secure adjustment.

### Tension Adjustment (Fig. 3-4)

1. Load the instrument with the back tension adjustment tape.
2. Place the instrument in the "play" mode.
3. Read the scale on the supply reel.
4. This reading should be between 27 and 38.
5. Move the tension arm spring to the position "A" on the spring holder when the tension adjustment tape reads 46 or higher, and to the position "C" on the spring holder when it is 26 or lower, and adjust the back tension for a nominal reading of 27-38 on the scale.
6. Recheck the tension arm position when the back tension is changed greatly (5 or more).

Note: The instrument must be in a horizontal position for this adjustment.

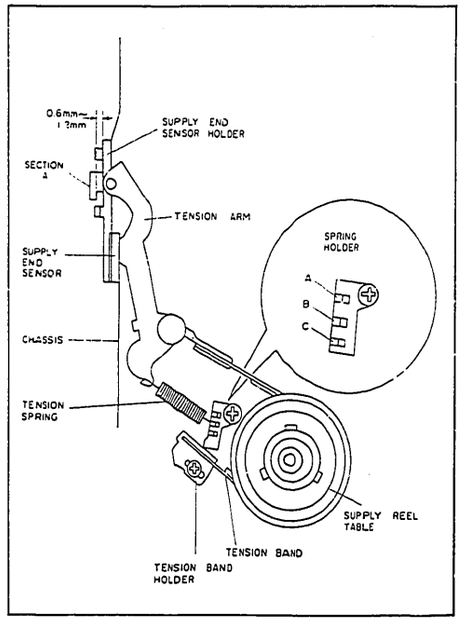



Fig. 3-4



### Impedance Roller Height Adjustment (Fig. 3-5)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the impedance roller.
3. Turn the impedance roller height adjusting nut so that the gap between the top of the impedance roller and the top of the jig is 1.5 mm to 2.5 mm.
4. Load a blank tape, run it and check that the tape does not ride over the upper and lower edge of the roller.

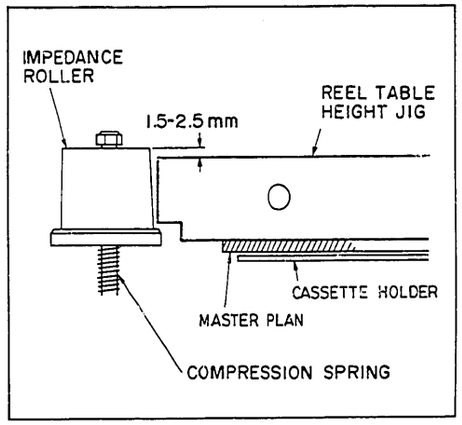



Fig. 3-5

### Guide Pole Height Adjustment (Fig. 3-6)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the guide pole.
3. Turn the guide pole height adjusting nut so that the gap between the upper flange of the guide pole and the top of the jig is 0.1 mm±0.1 mm.
4. Load a blank tape, run it and check that the tape does not ride over the upper and lower flanges of the ple.

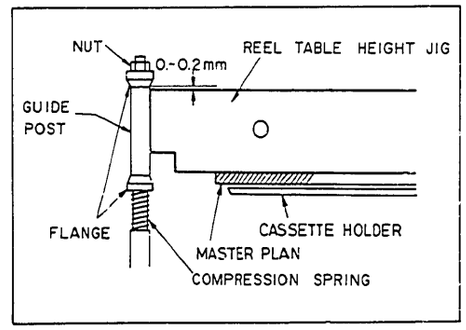



Fig. 3-6

### Guide Roller Height Adjustment (Figs. 3-7, 3-8)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the guide roller.
3. Tighten the guide roller fixing screw at the position where the upper flange of the guide roller and the top of the jig match.
4. Run the tape and check that the tape does not curl and ride over, and then perform the electrical adjustment.
5. Connect the oscilloscope to TP204 on the main board.
6. Playback the color bar test tape and set the tracking controller to the click position.
7. Check that the FM waveform is flat.
8. Then check that the FM drops at the start and end of the envelope are equal when the tracking control is turned to the left and right.
9. When the FM drops at the start and of the envelope are not equal, loosen the guide roller fixing screw, turn the guide roller a little to the left and right so that they are equal.
10. Tighten the fixing screw.

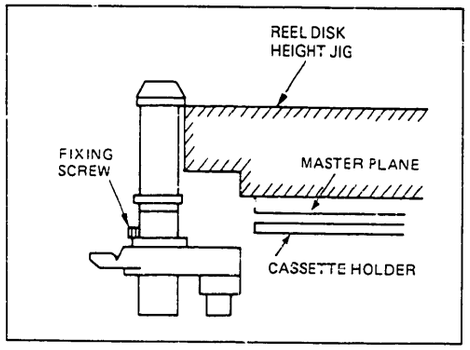



Fig. 3-7

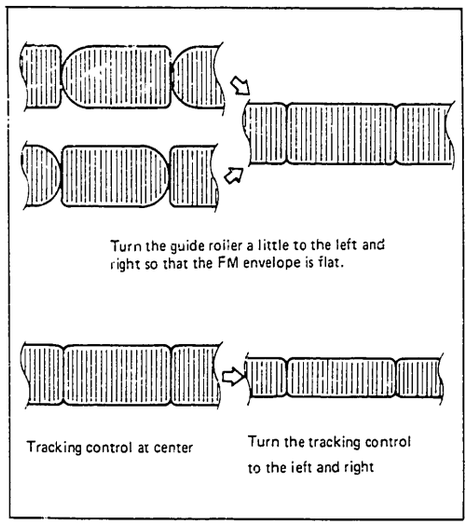

Turn the guide roller a little to the left and right so that the FM envelope is flat.
Tracking control at center
Turn the tracking control to the left and right

Fig. 3-8

**A/C Head Adjustment (Figs. 3-9, 3-10, 3-11, 3-12)**

Perform the height, tilt and azimuth adjustments repeatedly to determine the A/C head installation position, then adjust X value.
Detailed adjustment below is the procedure when the A/C head is replaced; be sure to do precise adjustment after rough adjustment.

**Rough adjustment (Fig. 3-9)**

1. Remove the cassette lid and left case before making adjustment.
2. Check that it is 2.5 – 3 mm between the top of Nut (A) and point of the shaft. If it is not, adjust Nut (A).
3. Install the height reference plate in its proper position.
4. Adjust Azimuth Screw (B), Tilt Screw (C) and Screw (F) so the height difference between the height reference plate and A/C head base (1) is 1 – 2 mm and A/C head bases (1) and (2) are parallel.

**Precise Adjustment (Figs. 3-9, 3-10)**

5. Connect the oscilloscope to PG903-6 on the main board.
6. Playback a 7 kHz audio signal on alignment tape.
7. Adjust azimuth screw (B) and tilt screw (C) for maximum output.

**X value adjustment (Figs. 3-9, 3-11, 3-12)**

8. Connect the oscilloscope to TP204 on the main board.
9. Trigger the oscilloscope at SW30 Hz. (Use TP205 on the main board)
10. Set the Tracking control (RV101) to the detent (fixed) position.
11. Loosen two (2) screws (D and E).
12. Playback a alignment tape.
13. Carefully move the A/C head base plate in either direction for maximum head envelope output by adjusting the X-value adjust point.
14. Lock two (2) screws (D and E) with paint.



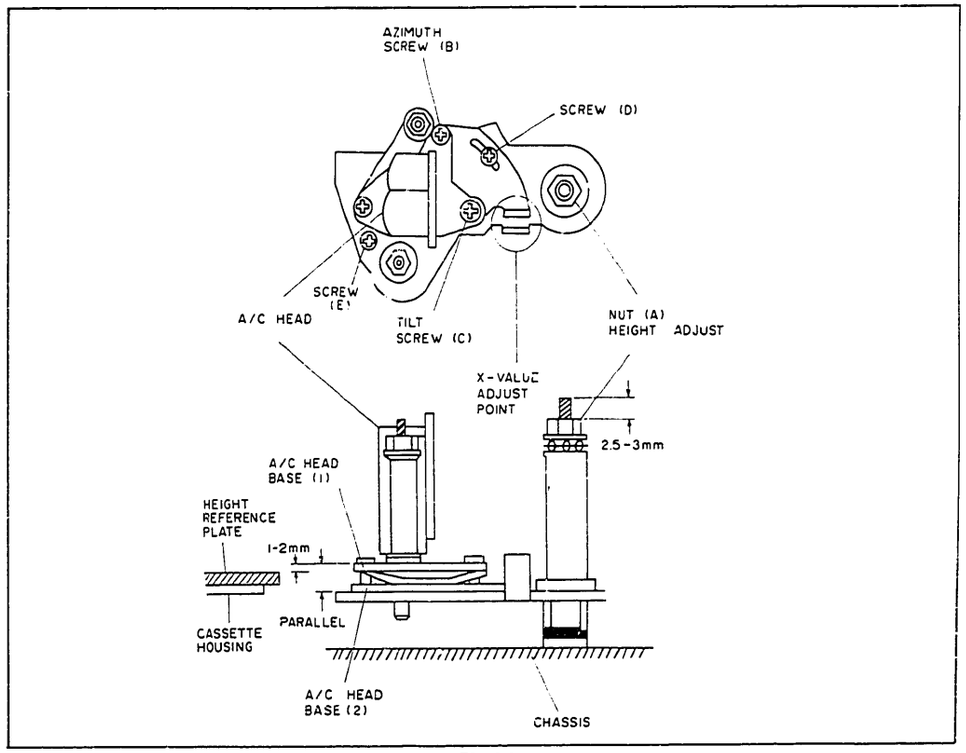



Fig. 3-9

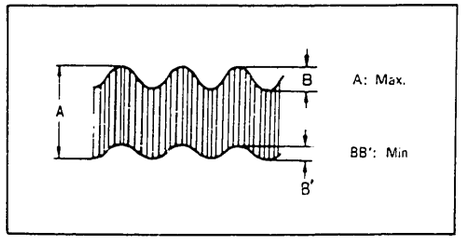



Fig. 3-10

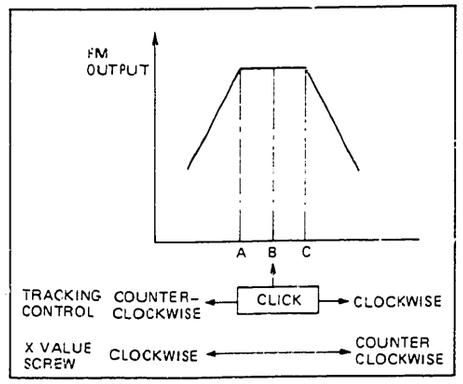



Fig. 3-11

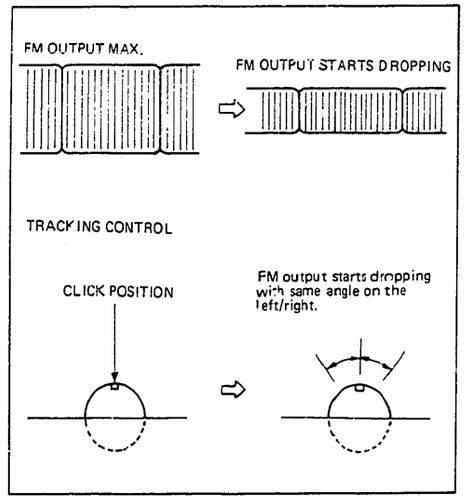

FM OUTPUT MAX.
FM OUTPUT STARTS DROPPING
TRACKING CONTROL
CLICK POSITION
FM output starts dropping with same angle on the left/right.

Fig. 3-12

**Adjustment After Replacing Cylinder (Video Head)**

When the cylinder is replaced, the relative height between the cylinder and guide roller and the X value, etc. drift, so adjustments of the tape transport system and servo system are required.
However, the drifts in the relative height and X value are very little when the cylinder is replaced normally, so they can be corrected by electrical adjustments.

1. Check that no curl or crease occurs around the guide roller. Adjust the guide roller height when they occur.
2. Perform tracking preset adjustments (Servo section).
3. Adjust the X value (described in "A/C Head Adjustment").
4. Check the flatness and level fluctuations of the FM output. The checking method is described later.
5. Adjust the servo section and Y/Chroma section.
   Head Switching Point Adjustment
   Tracking Preset Adjustment
   Record Luminance Level Adjustment
   Record Chroma Level Adjustment

**Check Flatness and Level Fluctuations of the FM Output (Fig. 3-13)**

1. Set the tracking control to the click position.
2. Fine adjust the voltage level range of the oscilloscope and set the FM output to 4 graduations.
3. Turn the tracking control to set the maximum amplitude of the FM output to 3 graduations.
4. Check that the minimum amplitude is more than 2 graduations.
5. Check that the level difference between the maximum and minimum amplitudes is less than 13%.

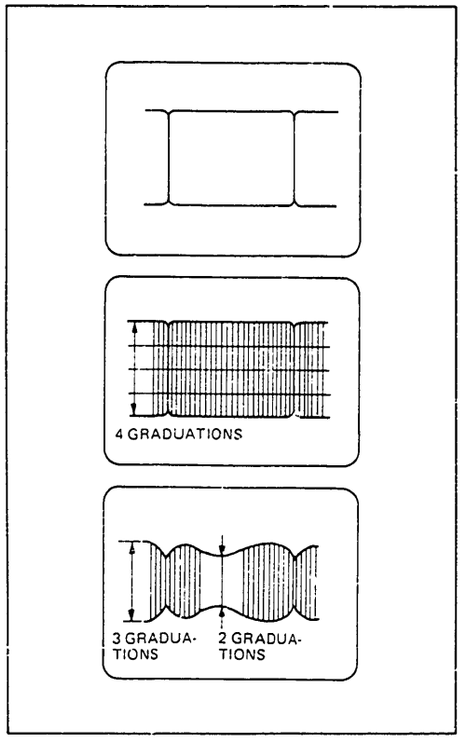



Fig. 3-13

### 3. TENSION AND TORQUE CHECKS (Fig. 3-14)

It is necessary to check the tension, torque and compression strength in the tape take-up section and moving section to smoothen the tape transport and to satisfy the basic performance of the VCR. When the tape transport is not smooth or the tape speed is abnormal detect the faulty section by this checking, and then check again after replacing the faulty parts with normal ones to complete the work.



| Item | VTR Operation Mode | Measured Reel | Measurement Value | Remarks |
|---|---|---|---|---|
| Main brake torque | STOP | Supply | 140g.cm ~ | Note 1 |
| | | Take-up | 80g.cm ~ | |
| Slack removal torque | UNLOADING | Supply | 90~200g.cm | Note 1 |
| Fast forward torque | F. FWD | Take-up | 400g. cm~ | Note 1 |
| Rewind torque | REW | Supply | 400g. cm ~ | Note 1 |
| Take-up torque | PLAY | Take-up | 800~1000g.cm | Note 1 |
| Back-tension torque | F. FWD | Supply | 4 ~10g. cm | Note 2 |
| | REW | Take-up | | |

Note 1:
This is the value measured using the torque gauge and torque adapter while sliding the torque gauge at the speed of 0.8 rps. However, the main brake torque shows the value measured while moving the take-up reel clockwise and the supply reel counterclockwise by hand at the speed of 0.8 rps.

Note 2:
This is the value measured using the dummy reel and fan type tension gauge while drawing the take-up reel disk counterclockwise and the supply reel disk clockwise at the speed of 50 mm/s.

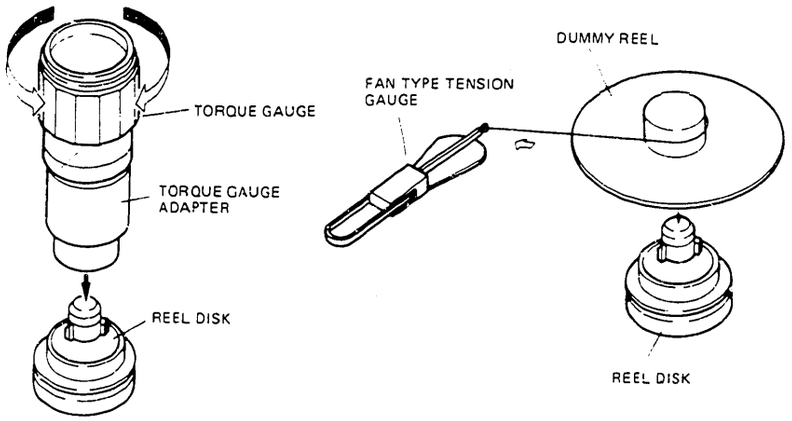



Fig. 3-14

# ELECTRICAL ADJUSTMENT

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## SERVICE POSITION

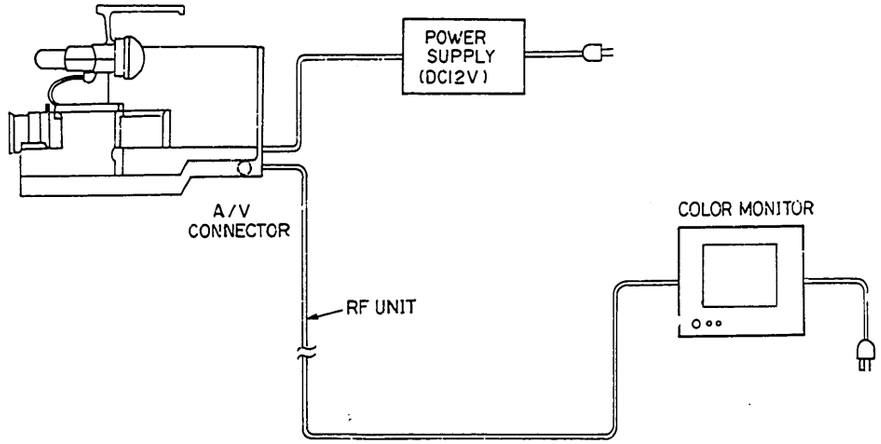



Fig. 4-1 Correct Setup Adjustment

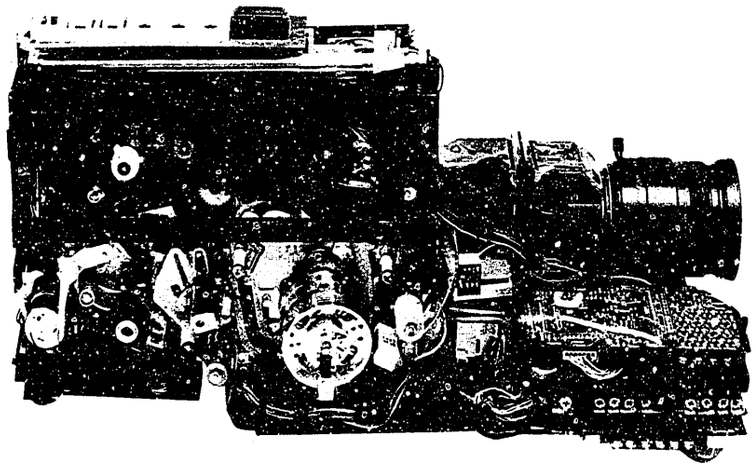


Fig. 4-2 Service Position

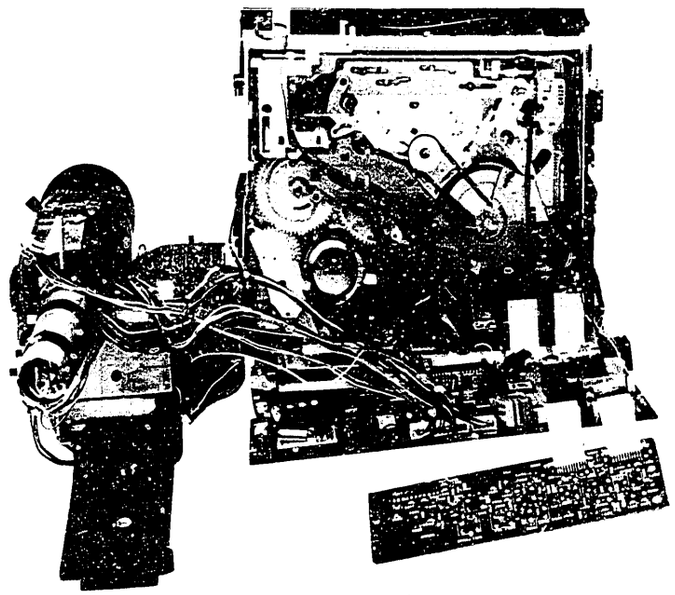


Fig. 4-3 Service Position

## CIRCUIT BOARDS LOCATION AND IDENTIFICATION

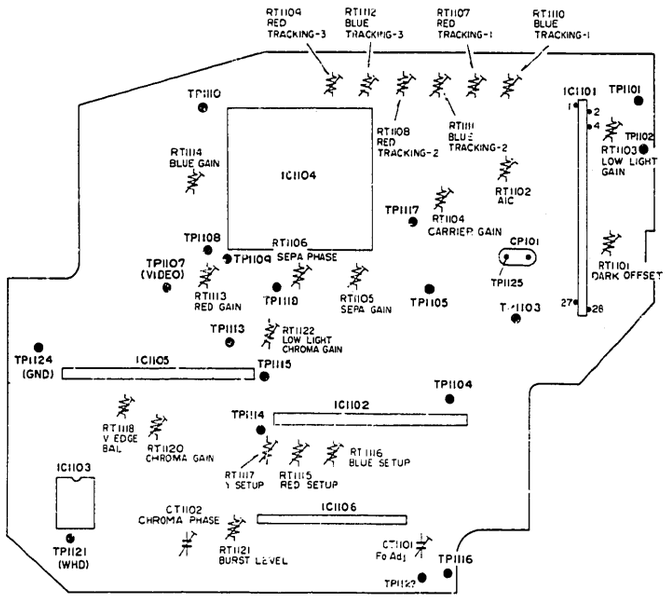



Fig. 4-4 Process Circuit Board (Component Side)



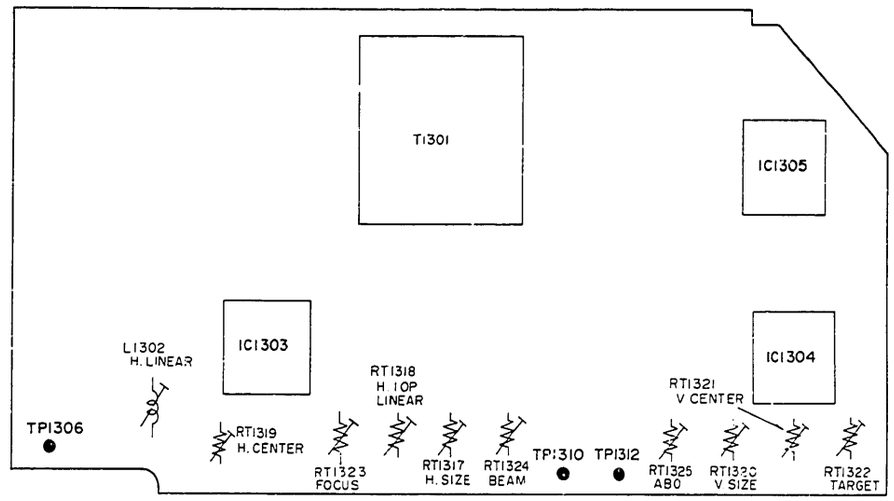



Fig. 4-5 Deflection Circuit Board (Component Side)

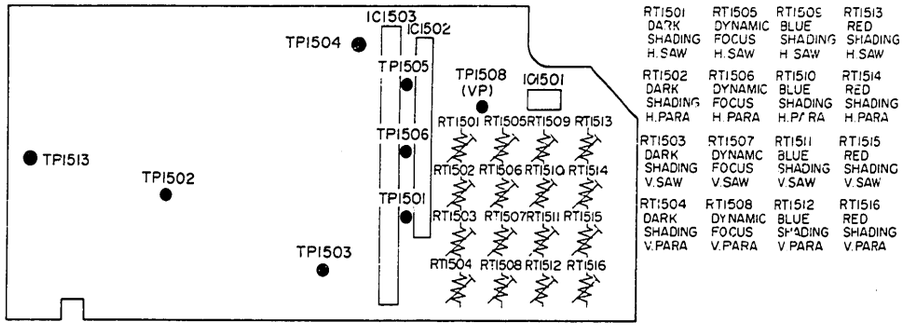



Fig. 4-6 Regulator Circuit Board (Solder Side)

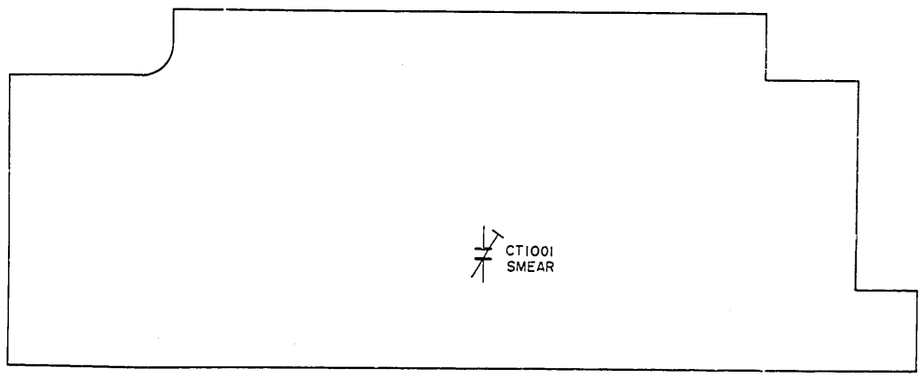



Fig. 4-7 Preamp Circuit Board (Solder Side)

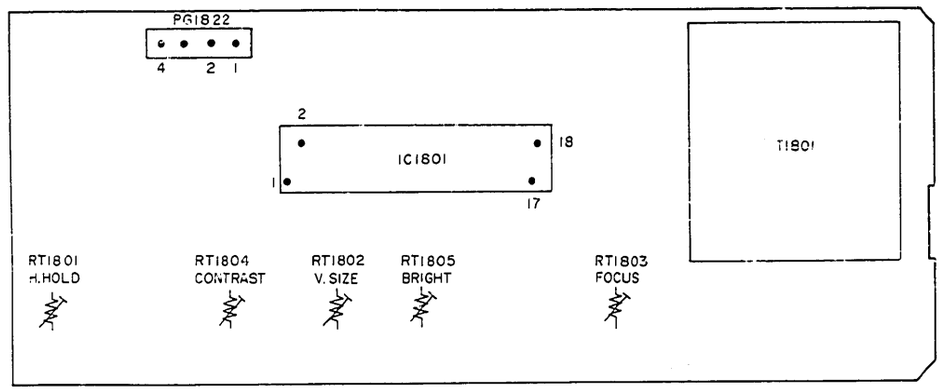



Fig. 4-8 Electronic Viewfinder Circuit Board (Component Side)

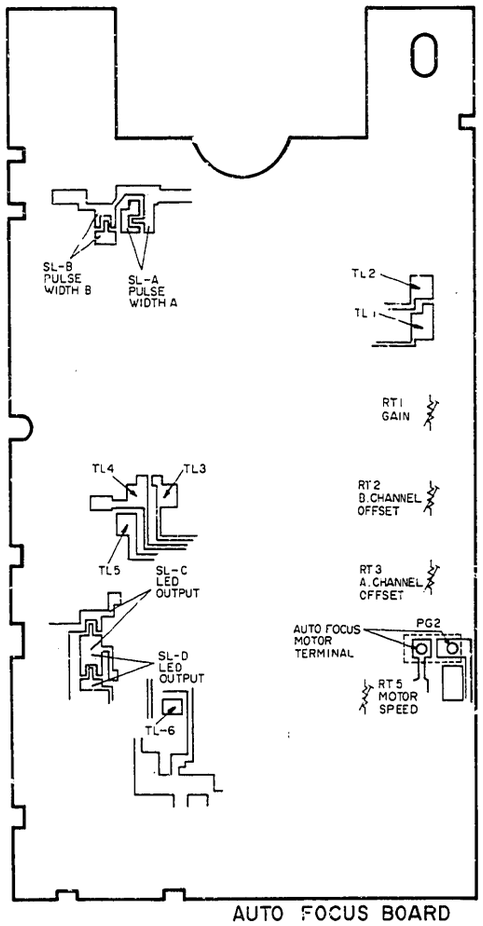



Fig. 4-9 Auto Focus Circuit Board (Solder Side)



## CAMERA SECTION

### TEST EQUIPMENT REQUIRED

The following equipment is required for adjustment of VHS MOVIE.

Oscilloscope
Digital Voltmeter (DVM)
Frequency Counter
Vectorscope
Color Video Monitor
Gray Scale Chart with 11 steps
3200°K Light Box
Color Bar Chart
Light Meter
Backfocus Test Chart A
Adjustment Chart
DC Power Supply (12V)

## ADJUSTMENT CONDITIONS

**Setting Up**

Connect the VHS MOVIE and test equipment as shown in Fig. 4-1. Allow the color camera and test equipment to warm up for at least 30 minutes prior to making adjustments.

Aim the camera at the chart fully over the video period when otherwise not specified.

**Preset Position of Customer controls and Switches**

VTR/CAMERA Switch ..... CAMERA position
WHITE BALANCE Switch ..... MANUAL position
POWER SAVE Switch ..... NORMAL position
AUTO FOCUS Switch ..... MANUAL position
HI-GAIN Switch ..... NORMAL position

**BALANCE Control Position Setup**

1. Connect the DVM to TP1109.
2. Turn the BALANCE Control knob so that the voltage at TP1109 is 1.0V.

## CAMERA ADJUSTMENTS

**Frequency Adjustment (3.58 MHz)** (Fig. 4-4)

Test Point: TP1115 Process
Adjust: CT1101 (Fo Adj) Process

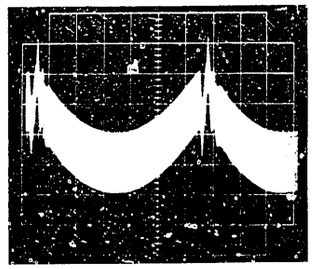
Misadjustment of the sub-carrier oscillator can cause no color, no color sync and tint problems.

1. Connect the frequency counter to TP1115.
2. Adjust Fo Adj control (CT1101) for 3.579545MHz ± 20Hz.

**Dynamic Focus Release** (Figs. 4-6, 4-10, 4-11, 4-12)

Test Point:
TP1503 (DYNAMIC FOCUS CORRECT) Regualtor
Adjust: RT1505 (DYNAMIC FOCUS H. SAW) Regulator
RT1506 (DYNAMIC FOCUS H. PARA) Regulator
RT1507 (DYNAMIC FOCUS V. SAW) Regulator
RT1508 (DYNAMIC FOCUS V. PARA) Regulator

1. Cap the lens.
2. Connect the oscilloscope to TP1503.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust DYNAMIC FOCUS H. SAW control (RT1505) and DYNAMIC FOCUS H. PARA control (RT1506) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust DYNAMIC FOCUS V. SAW control (RT1507) and DYNAMIC FOCUS V. PARA control (RT1508) to make the waveforms flat.



NO GOOD

Fig. 4-10 Dynamic Focus Releasement

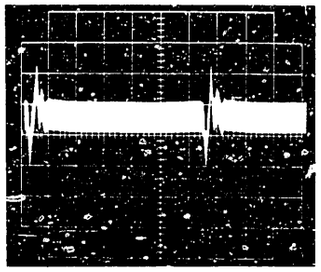



Fig. 4-11 Dynamic Focus Release

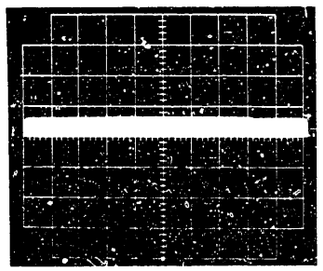



Fig. 4-12 Dynamic Focus Release

**R and B Signal Shading Release** (Figs. 4-6, 4-13, 4-14)

Test Points:

| | | |
|---|---|---|
| | TP1505 (RED SHADING CORRECT) | Regulator |
| | TP1504 (BLUE SHADING CORRECT) | Regulator |
| Adjust: | RT1513 (RED SHADING H. SAW) | Regulator |
| | RT1514 (RED SHADING H. PARA) | Regulator |
| | RT1515 (RED SHADING V. SAW) | Regulator |
| | RT1516 (RED SHADING V. PARA) | Regulator |
| | RT1509 (BLUE SHADING H. SAW) | Regulator |
| | RT1510 (BLUE SHADING H. PARA) | Regulator |
| | RT1511 (BLUE SHADING V. SAW) | Regulator |
| | RT1512 (BLUE SHADING V. PARA) | Regulator |

1. Cap the lens.
2. Connect the oscilloscope channel-1 to TP1505.
3. Connect the oscilloscope channel-2 to TP1504.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust RED SHADING H. SAW control (RT1513) and RED SHADING H. PARA control (RT1514) to make the waveforms at TP1505 flat.
6. Adjust BLUE SHADING H. SAW control (RT1509) and BLUE SHADING H. PARA control (RT1510) to make the waveforms at TP1504 flat.
7. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
8. Adjust RED SHADING V. SAW control (RT1515) and RED SHADING V. PARA control (RT1516) to make the waveforms at TP1505 flat.
9. Adjust BLUE SHADING V. SAW control (RT1511) and BLUE SHADING V. PARA control (RT1512) to make the waveforms at TP1504 flat.

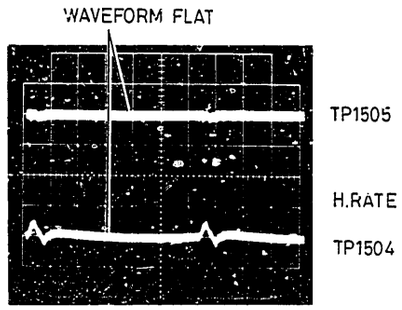



Fig. 4-13 R and B Signal Shading Release

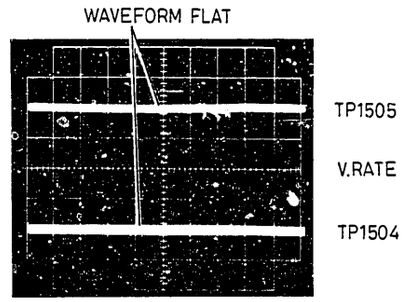



Fig. 4-14 R and B Signal Shading Release

**R and B Signal Tracking Release** (Fig. 4-4)

| | | |
|---|---|---|
| Adjust: | RT1112 (BLUE TRACKING-3) | Process |
| | RT1111 (BLUE TRACKING-2) | Process |
| | RT1110 (BLUE TRACKING-1) | Process |
| | RT1109 (RED TRACKING-3) | Process |
| | RT1108 (RED TRACKING-2) | Process |
| | RT1107 (RED TRACKING-1) | Process |

1. Cap the lens.
2. Set BLUE TRACKING-3 control (RT1112), BLUE TRACKING-2 control (RT1111), BLUE TRACKING-1 control (RT1110), RED TRACKING-3 control (RT1109), RED TRACKING-2 control (RT1108) and RED TRACKING-1 control (RT1107) to their mechanical centers.



**Target Voltage Adjustment** (Fig. 4-5)

| | | |
|---|---|---|
| Test Point: | TP1306 (TARGET) | Deflection |
| Adjust: | RT1322 (TARGET) | Deflection |

Loss of target voltage will cause a "no picture" condition.

1. Cap the lens.
2. Connect the DVM to TP1306.
3. Adjust TARGET control (RT1322) for 41V ± 0.1V.

**Beam Current Adjustment** (Figs. 4-4, 4-5, 4-15, 4-16)

| | | |
|---|---|---|
| Test Point: | TP1101 (PRE-VIDEO) | Process |
| Adjust: | RT1324 (BEAM) | Deflection |
| | RT1325 (ABO) | Deflection |

This procedure adjusts the electron beam by varying the G1 voltage. When the voltage is too high, the shading amount increases. When the voltage is too low the picture tends to "washout" or not appear at all.

Note: Perform this adjustment quickly with the lens cap removed after connecting all the measuring equipment, etc. with the lens capped. Cap the lens immediately after the adjustment is completed.

1. Aim the camera at the adjustment chart.
2. Connect TP1116 to ground (TP1124).
3. Connect the oscilloscope to TP1101.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Turn AIC control (RT1102) fully counterclockwise (As seen from conponent side).
6. Adjust BEAM control (RT1324) until the waveform is clipped at 1.4Vp-p ± 0.1V (Fig. 4-15).
7. Disconnect TP1116 from ground (TP1124).
8. Adjust ABO control (RT1325) until the waveform is clipped at 2.2Vp-p ± 0.1V (Fig. 4-16).

Note: After adjustment is complete, turn RT1102 mechanical center.

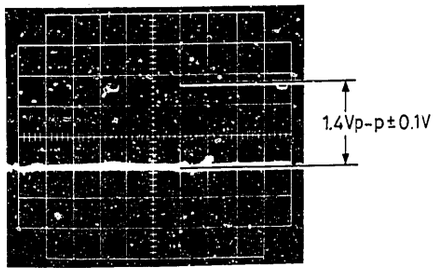



Fig. 4-15 Beam Current Adjustment

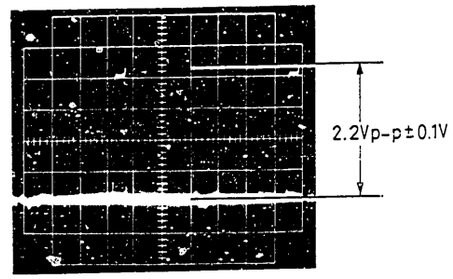



Fig. 4-16 Beam Current Adjustment

**Smear Adjustment** (Figs. 4-7, 4-17)

| | | |
|---|---|---|
| Adjust: | CT1001 (SMEAR) | Preamp |
| Observe: | Color Monitor | |

This adjustment matches the white, cyan and yellow delay times to minimize streaking in the horizontal direction.

1. Aim the camera at the gray scale chart.
2. Adjust SMEAR control (CT1001) to minimize smear in sections where black changes to gray and white changes to gray on the gray scale chart.

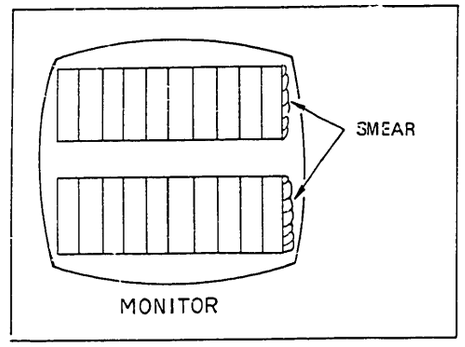



Fig. 4-17 Smear Adjustment

**Dark Shading Adjustment** (Figs. 4-4, 4-6, 4-18, 4-19)

Test Point:
TP1103 (AGC OUT) Process
Adjust: RT1501 (DARK SHADING H. SAW) Regulator
RT1502 (DARK SHADING H. PARA) Regulator
RT1503 (DARK SHADING V. SAW) Regulator
RT1504 (DARK SHADING V. PARA) Regulator

This adjustment corrects shading of the bias light so that the whole picture becomes dark without color noise when the camera is aimed at a dark place.

1. Cap the lens.
2. Connect the oscilloscope to TP1103 via a resistor (18k ohm).
3. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
4. Adjust DARK SHADING V. SAW control (RT1503) and DARK SHADING V. PARA control (RT1504) so that the waveform is flat.
5. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
6. Adjust DARK SHADING H. SAW control (RT1501) and DARK SHADING H. PARA control (RT1502) so that the waveform is flat.

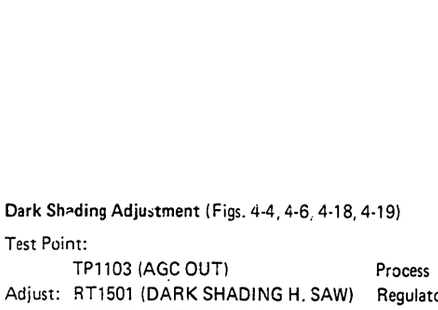



Fig. 4-18 Dark Shading Adjustment

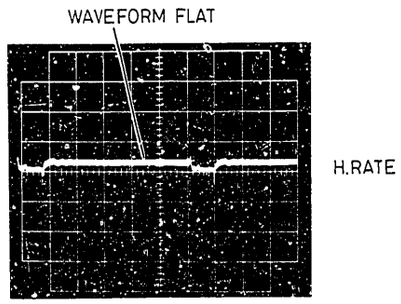



Fig. 4-19 Dark Shading Adjustment

**Dark Offset Adjustment** (Figs. 4-4, 4-20, 4-21)

Test Points: VIDEO OUTPUT (TP1107) Process
TP1103 (AGC OUT) Process
Adjust: RT1101 (DARK OFFSET) Process

This adjustment sets the black level.

1. Cap the lens.
2. Connect the oscilloscope to TP1103.
3. Trigger the oscilloscope at H. rate (Use TP1121 on process board.)
4. Adjust AGC OFFSET control (RT1101) so that the bottom edge at waveform matches the blanking level. (See Fig. 4-20)
5. Connect the oscilloscope to VIDEO OUTPUT (TP1107).
6. Adjust Y SETUP control (RT1117) for 85mVp-p ± 5mV from blanking level to the center of the waveform. (See Fig. 4-21)

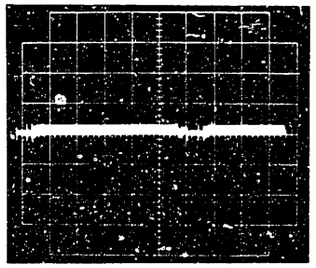



Fig. 4-20 Dark Offset Adjustment

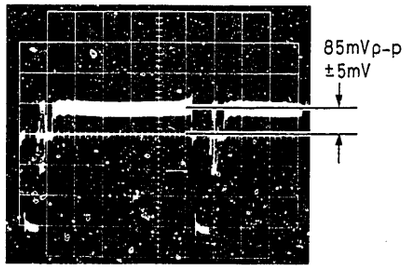



Fig. 4-21 Dark Offset Adjustment



**AGC Maximum Gain Adjustment** (Fig. 4-4)

Test Points: TP1102 Process
Adjust: RT1103 (LOW LIGHT GAIN) Process

1. Cap the lens.
2. Connect the DVM (+) terminal to TP1102.
3. Connect the DVM (–) terminal to ground.
4. Adjust the LOW LIGHT GAIN control (RT1103) for 1.09V ± 0.05V.

**AIC Level Adjustment** (Figs. 4-4, 4-22)

Test Point: VIDEO OUTPUT (TP1107) Process
Adjust: RT1102 (AIC) Process

Make this adjustment to set the balance point of the automatic iris. Depending on the AIC setting (too high or too low), can incorrect adjustment could cause the image to appear dark or bright under normal lighting.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to VIDEO OUTPUT (TP1107).
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Turn CHROMA GAIN control (RT1120) fully counter-clockwise (as viewed from the component side).
5. Adjust AIC (RT1102) for 700mVp-p ± 10mV the top of the gray scale waveform.

Note: After adjustment is complete, turn RT1120 mechanical center.

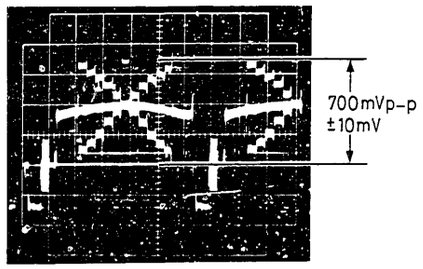



Fig. 4-22 AIC Level Adjustment

**Backfocus Adjustment** (Fig. 4-23)

The purpose of this adjustment is to ensure proper focus tracking throughout the zoom range.

1. Remove left case and right case.
2. Set chart illumination to 50 lux to 100 lux.
3. Aim the camera at the backfocus chart 10 feet (3 meters) away.
4. Set the focus ring to 10 feet (3 meters) position.
5. Loosen the hexagonal screw.
6. Zoom in (close up/telephoto) and adjust the lens focus.
7. Zoom out (wide angle) and insert the backfocus adjusting driver into the backfocus adjustment point and adjust the backfocus.
8. Zoom in again and adjust the lens focus.
9. Zoom out again and adjust the backfocus.
10. Repeat the procedure until the focus tracks throughout the zoom range.

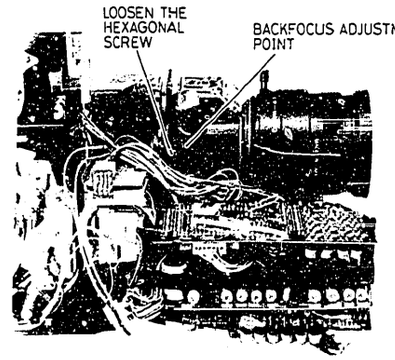



Fig. 4-23 Backfocus Adjustment

**Chroma Carrier Level Adjustment** (Figs. 4-4, 4-5, 4-24)

| | | |
|---|---|---|
| Test Point: | TP1108 (CARRIER OUT) | Process |
| Adjust: | RT1323 (FOCUS) | Deflection |
| | RT1104 (CARRIER GAIN) | Process |

The purpose of this procedure is to adjust the saticon focus electrode voltage so the beam is focused on the photoconductive film and also to adjust the carrier level of the chroma signal. Incorrect carrier level setting can cause color and tint problems.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to TP1108.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust FOCUS control (RT1323) so that the waveforms are maximum.
5. Adjust CARRIER GAIN control (RT1104) so that the waveform is 700mVp-p ± 50mV.

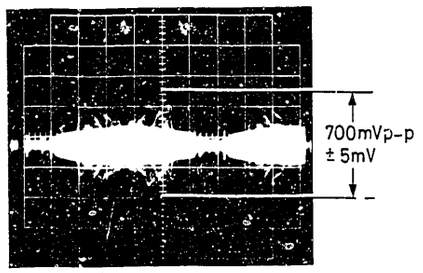



Fig. 4-24 Chroma Carrier Level Adjustment

**Vertical Size Adjustment** (Figs. 4-4, 4-5, 4-6, 4-25, 4-26)

| | | |
|---|---|---|
| Test Point: | TP1108 (CARRIER OUT) | Process |
| | TP1513 (5V) | Regulator |
| | TP1310 | Deflection |
| Adjust: | RT1320 (V. SIZE) | Deflection |

This adjustment sets the proper vertical scanning of the saticon. Improper adjustment could cause distorted images (circle becoming an ellipse) or a space at the top or bottom of the picture.

1. Marking the center on the monitor screen.
2. Connect TP1310 and TP1513.
3. Adjust V. CENTER (RT1321) so that the center mark came to the center of the screen.
4. Remove the shout circuit between TP1310 and TP1513.
5. Aim the camera at the light box (white chart).
6. Connect the oscilloscope to TP1108.
7. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
8. Adjust V. SIZE control (RT1320) for minimum beats during the vertical period. (Figs. 4-25, 4-26)

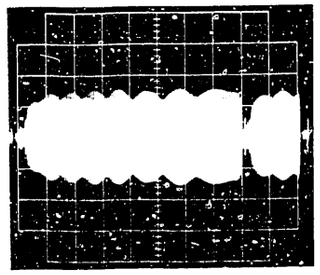



Fig. 4-25 Vertical Size Adjustment

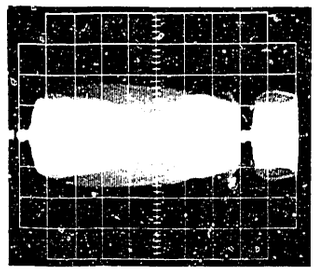



Fig. 4-26 Vertical Size Adjustment

**Horizontal Size and Horizontal Linearity Adjustment** (Figs. 4-4, 4-5, 4-27, 4-28, 4-29)

| | | |
|---|---|---|
| Test Point: | TP1125 | Process |
| Adjusts: | RT1317 (H. SIZE) | Deflection |
| | RT1318 (H. TOP LINEAR) | Deflection |
| | L1302 (H. LINEAR) | Deflection |

The purpose of this adjustment is to set the proper horizontal scanning of the saticon. Improper adjustment could cause distorted images or the color balance to shift (probably to green).

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope to TP1125.
3. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
4. Delay the waveform and observe its center.
5. Adjust H. SIZE control (RT1317) so that the carrier (4.3 MHz) in the center portion of the signal at TP1125 is minimum.
6. Adjust H. TOP LINEAR control (RT1318) for minimum carrier (4.3 MHz) over the wheel Y signal. Adjust H. LINEAR control (L1302) so the carrier (4.3 MHz) at the starting portion of Y signal at point TP1125 is minimum and the starting portion of Y signal becomes as flat as possible.



* When use the oscilloscope not provided a delay function adjust items 5 and 6 with triggering the oscilloscope at H. rate.

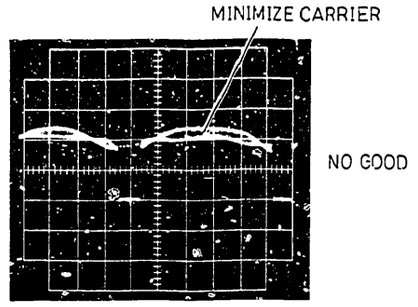



Fig. 4-27 Horizontal Size and Linearity Adjustment

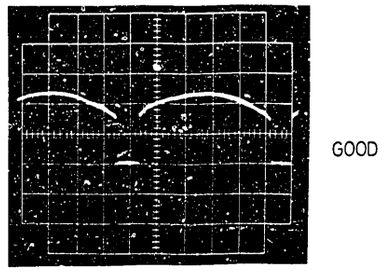



Fig. 4-28 Horizontal Size and Linearity Adjustment

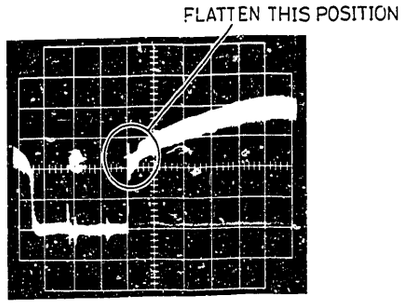



Fig. 4-29 Horizontal Size and Horizontal Linearity Adjustment

**Horizontal Center and Vertical Center Adjustment** (Figs. 4-5, 4-6)

| | | |
|---|---|---|
| Adjust: | RT1319 (H. CENTER) | Deflection |
| | RT1321 (V. CENTER) | Deflection |
| Test Points: | TP1310 | Deflection |
| | TP1312 | Deflection |
| | TP1513 (5V) | Regulator |
| Observe: | Color Monitor | |

This adjustment determines the horizontal and vertical deflection positions in the saticon. If misadjusted a space could appear on either side of the picture.

***Vertical Center Adjustment**

1. Marking the center on the monitor screen.
2. Connect TP1310 and TP1513.
3. Adjust V. CENTER (RT1321) so that the center mark come to the center of the screen.
4. Remove shout circuit between TP1310 and TP1513.

***Horizontal Center Adjustment**

1. Marking the center on the monitor screen.
2. Connect TP1312 and TP1513.
3. Adjust H. CENTER (RT1319) so that the center mark come to the center of the screen.
4. Remove shout circuit between TP1312 and TP1513.

**V. Edge Correction Adjustment** (Figs. 4-4, 4-30, 4-31)

| | | |
|---|---|---|
| Test Point: | TP1118 (V. EDGE) | Process |
| Adjust: | RT1118 (V. EDGE BAL) | Process |

This adjustment corrects the "colored edge phenomena" that occurs horizontally in the line following dark to light or light to dark scene changes.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to TP1118.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust V. EDGE BAL control (RT1118) to minimize the video signal in the waveform. (Figs. 4-30, 4-31)

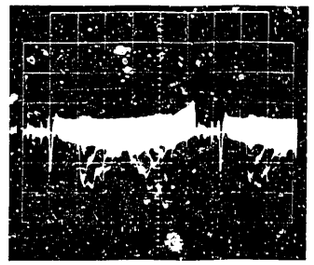
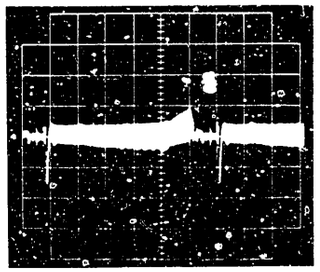



Fig. 4-30 V. Edge Correction Adjustment



GOOD

Fig. 4-31 V. Edge Correction Adjustment

**Chroma Setup Adjustment** (Figs. 4-4, 4-32)

| | | |
|---|---|---|
| Test Point: | TP1114 (B-YL SIGNAL) | Process |
| | TP1113 (R-YL SIGNAL) | Process |
| Adjust: | RT1115 (RED SETUP) | Process |
| | RT1116 (BLUE SETUP) | Process |

This adjustment makes the picture black without color noise when the camera is aimed at a dark place.

1. Cap the lens.
2. Connect the oscilloscope channel-1 to TP1114 via a resistor (18k ohm).
3. Connect the oscilloscope channel-2 to TP1113 via a resistor (18k ohm).
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust BLUE SETUP control (RT1116) so that the top edge of chroma level at TP1113 matches the blanking level.
6. Adjust RED SETUP control (RT1115) so that the top edge of chroma level at TP1114 matches the blanking level.

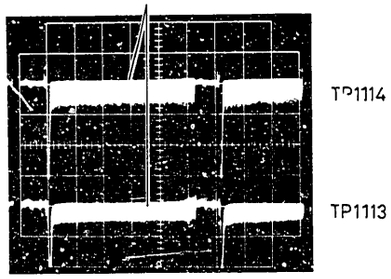



Fig. 4-32 Chroma Setup Adjustment

**R and B Signal Gain and Separation Adjustment**

**1) R and B Signal Separation Adjustment** (Figs. 4-4, 4-33)

| | | |
|---|---|---|
| Test Point: | TP1114 (B-YL SIGNAL) | Process |
| | TP1113 (R-YL SIGNAL) | Process |
| Adjust: | RT1105 (SEPA GAIN) | Process |
| | RT1106 (SEPA PHASE) | Process |

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust SEPA PHASE control (RT1106) and SEPA GAIN control (RT1105) for minimum flicker in the waveforms.

**2) R and B Signal Gain Adjustment** (Figs. 4-4, 4-34)

| | | |
|---|---|---|
| Test point: | TP1114 (B-YL SIGNAL) | Process |
| | TP1113 (R-YL SIGNAL) | Process |
| Adjust: | RT1114 (BLUE GAIN) | Process |
| | RT1113 (RED GAIN) | Process |

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust BLUE GAIN control (RT1114) so that the top edge of chroma level at TP1114 matches the blanking level.
6. Adjust RED GAIN control (RT1113) so that the top edge of chroma level at TP1113 matches the blanking level.

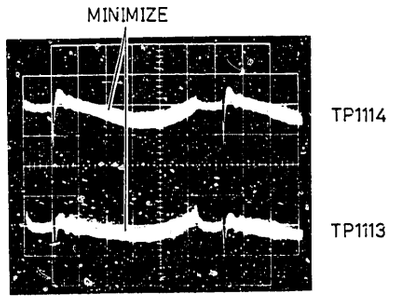



Fig. 4-33 R and B Signal Separation Adjustment



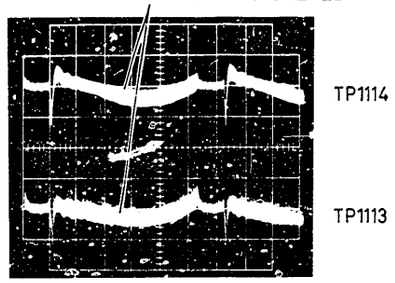



Fig. 4-34 R and B Signal Gain Adjustment

**Focus Preset Adjustment** (Figs. 4-4, 4-5, 4-35)

| | | |
|---|---|---|
| Test Points: | TP1113 (R-YL SIGNAL) | Process |
| | TP1114 (B-YL SIGNAL) | Process |
| Adjust: | RT1323 (FOCUS) | Deflection |

1. Aim the camera at the gray scale chart.
2. Connect TP1105 to ground (TP1124) via an electrolytic capacitor (47$\mu$F/16V).
3. Connect the oscilloscope channel-1 to TP1114.
4. Connect the oscilloscope channel-2 to TP1113.
5. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
6. Adjust FOCUS control (RT1323) so that the gray level of the waveform is 1st – 6th steps from the top are maximum.

Note: When the waveform fluctuates regardless of correct synchronization during the above adjustment, adjust RT1105 and RT1106 so that fluctuations on the waveform becomes small and then adjust RT1323.
Remove the electrolytic capacitor connecting TP1105 and GND (TP1121) after adjustment is completed.

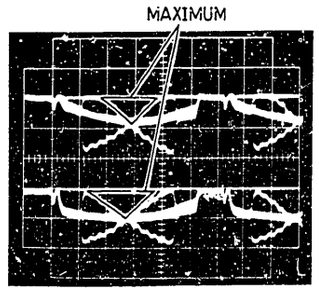



Fig. 4-35 Focus Preset Adjustment

**Dynamic Focus Preset Adjustment**
(Figs. 4-4, 4-6, 4-36, 4-37)

| | | |
|---|---|---|
| Test Point: | TP1113 (R-YL SIGNAL) | Process |
| | TP1114 (B-YL SIGNAL) | Process |
| Adjust: | RT1508 (DYNAMIC FOCUS V. PARA) | Regulator |
| | RT1507 (DYNAMIC FOCUS V. SAW) | Regulator |
| | RT1506 (DYNAMIC FOCUS H. PARA) | Regulator |
| | RT1505 (DYNAMIC FOCUS H. SAW) | Regulator |

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust DYNAMIC FOCUS H. PARA control (RT1506) and DYNAMIC FOCUS H. SAW control (RT1505) to make the waveforms flat.
6. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
7. Adjust DYNAMIC FOCUS V. PARA control (RT1508) and DYNAMIC FOCUS V. SAW control (RT1507) to make the waveforms flat.

Note: Repeat this adjustment.

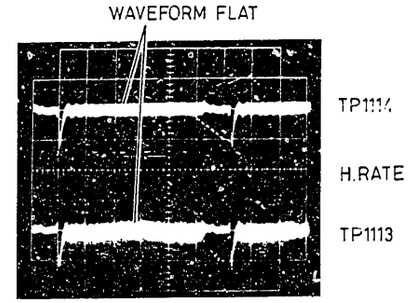



Fig. 4-36 Dynamic Focus Preset Adjustment

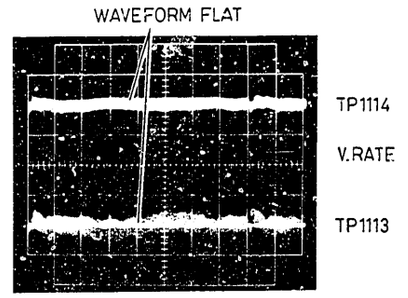



Fig. 4-37 Dynamic Focus Preset Adjustment

**R and B Signal Shading Preset Adjustment**

**1) R Signal Shading Preset Adjustment**
(Figs. 4-4, 4-6, 4-38, 4-39)

Test Point:
TP1113 (R-YL SIGNAL) Process
Adjust: RT1513 (RED SHADING H. SAW) Regulator
RT1514 (RED SHADING H. PARA) Regulator
RT1515 (RED SHADING V. SAW) Regulator
RT1516 (RED SHADING V. PARA) Regulator

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope to TP1113.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust RED SHADING H. SAW control (RT1513) and RED SHADING H. PARA control (RT1514) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust RED SHADING V. SAW control (RT1515) and RED SHADING V. PARA control (RT1516) to make the waveforms flat.

**2) B Signal Shading Preset Adjustment**
(Figs. 4-4, 4-6, 4-38, 4-39)

Test Point: TP1114 (B-YL SIGNAL) Process
Adjust: RT1509 (BLUE SHADING H. SAW) Regulator
RT1510 (BLUE SHADING H. PARA) Regulator
RT1511 (BLUE SHADING V. SAW) Regulator
RT1512 (BLUE SHADING V. APRA) Regulator

1. Aim the camera at the light box(white chart).
2. Connect the oscilloscope to TP1114.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust BLUE SHADING H. SAW control (RT1509) and BLUE SHADING H. PARA control (RT1510) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust BLUE SHADING V. SAW control (RT1511) and BLUE SHADING V. PARA control (RT1512) to make the waveforms flat.

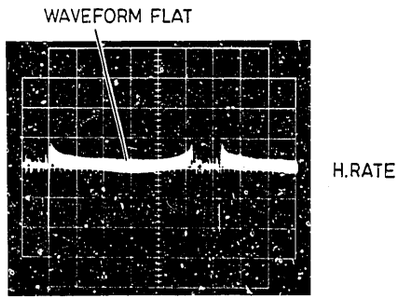



Fig. 4-38 R and B Shading Preset Adjustment

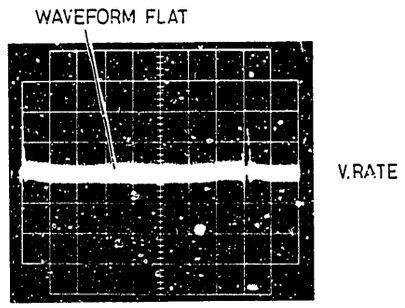



Fig. 4-39 R and B Shading Preset Adjustment

**Tracking Preset Adjustment** (Figs. 4-4, 4-40)

Test Points: TP1114 (B-YL SIGNAL) Process
TP1113 (R-YL SIGNAL) Process
Adjust: RT1114 (BLUE GAIN) Process
RT1113 (RED GAIN) Process
RT1110 (BLUE TRACKING-1) Process
RT1107 (RED TRACKING-1) Process
RT1111 (BLUE TRACKING-2) Process
RT1108 (RED TRACKING-2) Process
RT1112 (BLUE TRACKING-3) Process
RT1109 (RED TRACKING-3) Process

Note: Confirm the WHITE BALANCE Switch and WHITE BALANCE Control.

WHITE BALANCE Switch . . . . . MANUAL position
BALANCE Control . . . . . LIGHT BULB position

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board)
5. Adjust BLUE GAIN control (RT1114), BLUE TRACKING-1 control (RT1110), BLUE TRACKING-2 control (RT1111) and BLUE TRACKING-3 control (RT1112) to make the waveforms flat and match the blanking level at TP1114.
6. Adjust RED GAIN control (RT1113), RED TRACKING-1 control (RT1107), RED TRACKING-2 control (RT1108) and RED TRACKING-3 control (RT1109) to make the waveforms flat and match the blanking level at TP1113.



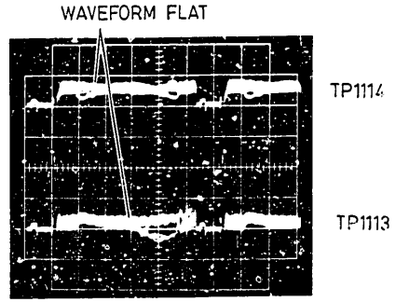



Fig. 4-40 Tracking Preset Adjustment

**Focus Adjustment** (Figs. 4-4, 4-5, 4-41)

Test Point: TP1113 (R-YL SIGNAL) Process
TP1114 (B-YL SIGNAL) Process
Adjust: RT1323 (FOCUS) Deflection

1. Aim the camera at the gray scale chart.
2. Connect TP1105 to ground (TP1124) via an electrolytic capacitor (47μF/16V).
3. Connect the oscilloscope channel-1 to TP1114.
4. Connect the oscilloscope channel-2 to TP1113.
5. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
6. Adjust FOCUS control (RT1323) so that the gray level of the waveform is level of 1st – 6th steps from the bottom are maximum.

Note: Remove the electrolytic capacitor connecting TP1105 and GND (TP1124) after adjustment is completed.

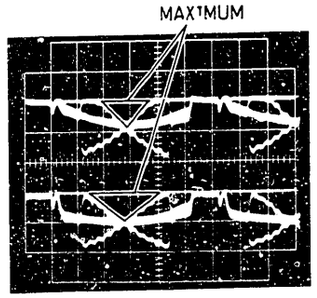



Fig. 4-41 Focus Adjustment

**Chroma Carrier Level Confirmation** (Fig. 4-4)

Test Point: TP1108 (CARRAIER OUT) Process

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to TP1108.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Confirm that the waveform is 700mV ± 40mVp-p. If it is not within the range, readjust Chroma Carrier Level Control (RT1104).

**Dynamic Focus Adjustment** (Figs. 4-4, 4-6, 4-42, 4-43)

Test Point: TP1113 (R-YL SIGNAL) Process
TP1114 (B-YL SIGNAL) Process
Adjust: RT1508 (DYNAMIC FOCUS V. PARA) Regulator
RT1507 (DYNAMIC FOCUS V. SAW) Regulator
RT1506 (DYNAMIC FOCUS H. PARA) Regulator
RT1505 (DYNAMIC FOCUS H. SAW) Regulator

This adjustment corrects for focusing errors away from the center of the tube caused by scanning a flat surface. Misadjustment of these controls will cause color unevenness to increase.

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust DYNAMIC FOCUS H. PARA control (RT1506) and DYNAMIC FOCUS H. SAW control (RT1505) to make the waveforms flat.
6. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
7. Adjust DYNAMIC FOCUS V. PARA control (RT1508) and DYNAMIC FOCUS V. SAW control (RT1507) to make the waveforms flat.

Note: Repeat this adjustment.

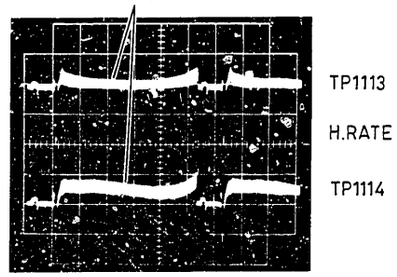



Fig. 4-42 Dynamic Focus Adjustment

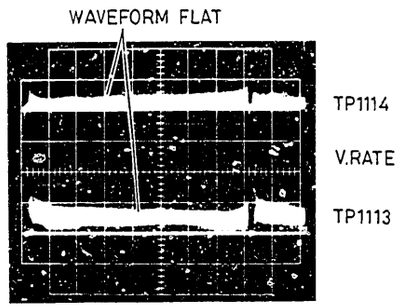



Fig. 4-43 Dynamic Focus Adjustment

**R and B Signal Shading Adjustment**

**1) R Signal Shading Adjustment** (Figs. 4-4, 4-6, 4-44, 4-45)

| | | |
|---|---|---|
| Test Point: | TP1113 (R-YL SIGNAL) | Process |
| Adjust: | RT1513 (RED SHADING H. SAW) | Regulator |
| | RT1514 (RED SHADING H. PARA) | Regulator |
| | RT1515 (RED SHADING V. SAW) | Regulator |
| | RT1516 (RED SHDAING V. PARA) | Regulator |

The purpose of this adjustment is to correct for red signal color unevenness.

1. Aim the camera of the light box (White chart).
2. Connect the oscilloscope to TP1113.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust RED SHADING H. SAW control (RT1513) and RED SHADING H. PARA control (RT1514) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust RED SHADING V. SAW control (RT1515) and RED SHADING V. PARA control (RT1516) to make the waveforms flat.

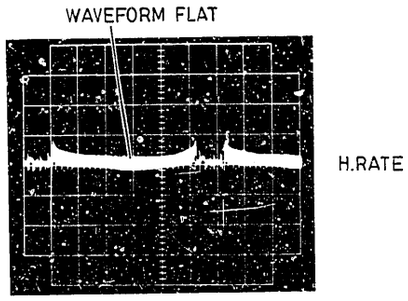



Fig. 4-44 R and B Shading Adjustment

**2) B Signal Shading Adjustment** (Figs. 4-4, 4-6, 4-44, 4-45)

| | | |
|---|---|---|
| Test Point: | TP1114 (B-YL SIGNAL) | Process |
| Adjust: | RT1509 (BLUE SHADING H. SAW) | Regulator |
| | RT1510 (BLUE SHADING H. PARA) | Regulator |
| | RT1511 (BLUE SHADING V. SAW) | Regulator |
| | RT1512 (BLUE SHADING V. PARA) | Regulator |

The purpose of this adjustment is to correct for blue signal color unevenness.

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope to TP1114.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust BLUE SHADING H. SAW control (RT1509) and BLUE SHADING H. PARA control (RT1510) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust BLUE SHADING V. SAW control (RT1511) and BLUE SHADING V. PARA control (RT1512) to make the waveforms flat.

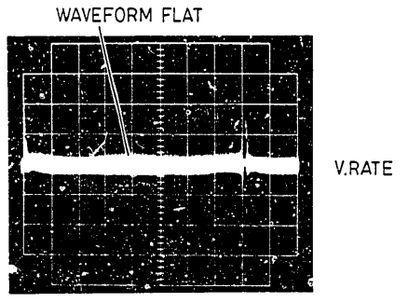



Fig. 4-45 R and B Shading Adjustment



**Rand B Signal Tracking Adjustment** (Figs. 4-4, 4-46)

| | | |
|---|---|---|
| Test Point: | TP1114 (B-YL SIGNAL) | Process |
| | TP1113 (R-YL SIGNAL) | Process |
| Adjust: | RT1114 (BLUE GAIN) | Process |
| | RT1113 (RED GAIN) | Process |
| | RT1110 (BLUE TRACKING-1) | Process |
| | RT1107 (RED TRACKING-1) | Process |
| | RT1111 (BLUE TRACKING-2) | Process |
| | RT1108 (RED TRACKING-2) | Process |
| | RT1112 (BLUE TRACKING-3) | Process |
| | RT1109 (RED TRACKING-3) | Process |

These adjustments ensure that the red and blue signals track properly with the Y signal at all light levels.

Note: Confirm the WHITE BALANCE Switch and BALANCE Control.
WHITE BALANCE Switch . MANUAL position
BALANCE Control . . . . LIGHT BULB position

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust BLUE GAIN control (RT1114), BLUE TRACKING-1 control (RT1110), BLUE TRACKING-2 control (RT1111) and BLUE TRACKING-3 control (RT1112) to make the waveforms flat and match the blanking level at TP1114.
6. Adjust RED GAIN control (RT1113), RED TRACKING-1 control (RT1107), RED TRACKING-2 control (RT1108) and RED TRACKING-3 control (RT1109) to make the waveforms flat and match the blanking level at TP1113.

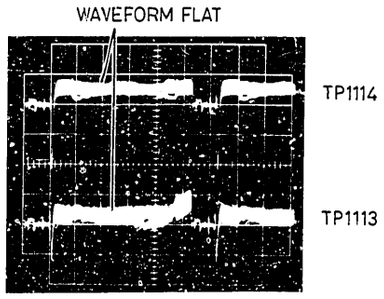



Fig. 4-46 Tracking Adjustment

**Burst Level Adjustment** (Figs. 4-4, 4-47)

| | | |
|---|---|---|
| Test Point: | VIDEO OUTPUT (TP1107) | Process |
| Adjust: | RT1121 (BURST LEVEL) | Process |

This adjustment determines the position of color saturation.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to VIDEO OUTPUT (TP1107).
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust BURST LEVEL control (RT1121) for 280mV-p ± 15 mV to the burst level of gray scale waveform.

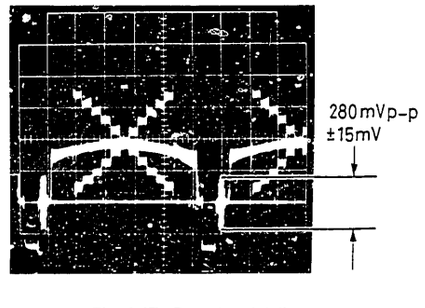



Fig. 4-47 Burst Level Adjustment

**Chroma Gain and Phase Adjustment** (Figs. 4-4, 4-48)

Test Point: VIDEO OUTPUT (NTSC OUT)

| Adjust. | | |
|---|---|---|
| | RT1120 (CHROMA GAIN) | Process |
| | CT1102 (BURST PHASE) | Process |

* Adjustment using monitor TV.

1. Set the Auto White Balance Switch to "MANUAL" position.
2. Aim the camera at the light box (white chart) and optimize the white balance using the White Balance Control Knob.
3. Aim the camera at the color bar chart.
4. Adjust CHROMA GAIN control (RT1120) and BURST PHASE (CT1102) so that the tint of the red of both the TV screen and the color bar chart match as much as possible.

1. Set the Auto White Bala switch to "MANUAL".
2. Aim the camera at the light box (white chart) and optimize the white balance using the White Balance Control knob.
3. Aim the camera at the NTSC color bar chart.
4. Connect the VIDEO OUTPUT terminated vectorscope.
5. Adjust CHROMA GAIN control (RT1120) so that the red vector is equal to 220% ± 10% when compared to the burst level.
6. Adjust BURST PHASE (CT1102) so that the red vector phase is 280° ± 3° from burst.

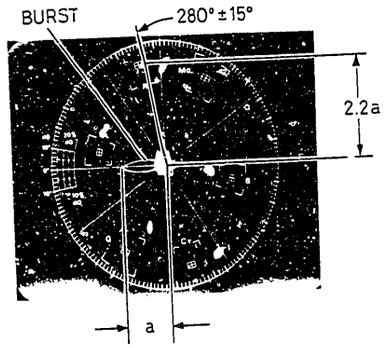



Fig. 4-48 Chroma Gain and Phase Adjustment

**Low light Chroma Gain Adjustment**

Adjust: RT1122 (LOW LIGHT CHROMA GAIN)
Observe: Color Monitor

This adjustment sets coloring low illumination.

1. Aim the camera at a dark place with approx. 20 lux.
2. Set LOW LIGHT CHROMA GAIN control (RT1122) to a position where noise on the monitor screen start to increase abruptly.



## VIEWFINDER ADJUSTMENTS

The conditions and connections for viewfinder adjustment are the same as shown in Fig. 4-1.

**Horizontal Hold Adjustment** (Figs. 4-8, 4-50)

| Test Point: TP1801 (TP1802) | | Electronic Viewfinder |
|---|---|---|
| Adjust: | RT1801 (H. HOLD) | Electronic Viewfinder |

This procedure sets the horizontal sync frequency during VTR playback.

1. Connect the frequency counter to IC1801-2 on the electronic viewfinder board.
2. Set the H. HOLD (RT1801) to mechanical center.
3. Connect a capacitor (47μF) between pins 1 and 2 of PG1822.
4. Adjust H. H18LD (RT801) for 15.75 ± 0.1kHz.
5. Disconnect the capacitor connected between pins 1 and 2 of PG1822.

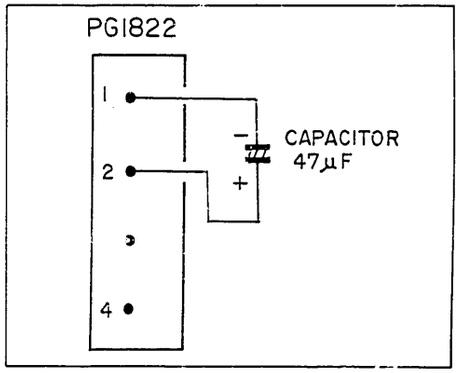



Fig. 4-50 HOrizontal Hold Adjustment

**Picture Tilt Adjustment** (Fig. 4-51)

| Adjust: | Deflection Coil |
|---|---|
| Observe: | Viewfinder |

This procedure is used to set the picture tilt of the EVF image.

1. Make sure the camera is aligned with the chart.
2. Loosen the deflection coil holding screw.
3. Observe the viewfinder, and turn the deflection coil until the image is straight.
4. Tighten the screw holding the deflection coil.

**Centering Magnets Adjustment** (Fig. 4-51)

| Adjust: | Centering Magnets |
|---|---|
| Observe: | Viewfinder |

This adjustment sets the center of the image picked up by the camera to the center of the EVF screen.

1. Aim the camera at a resolution chart.
2. Adjust the centering magnets until the center of the picture (+) comes to the center of viewfinder raster.

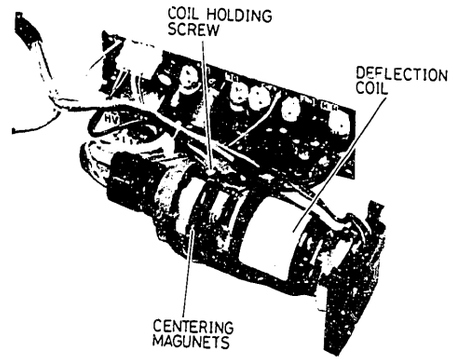



Fig. 4-51 Picture Tilet and Centering Magnets, Adjustment

**Vertical Size Adjustment** (Fig. 4-8)

| Adjust: | RT1802 (V. SIZE) | Electronic Viewfinder |
|---|---|---|
| Observe: | | Viewfinder |

This adjustment determines the vertical deflection size.

1. Aim the camera at a resolution chart, and line up the reference arrow head with the edge of the raster (blanking) in the EVF.
2. Adjust V. SIZE (RT1802) so that the circle in the chart is round.

**Focus Adjustment** (Fig. 4-8)

| Adjust: | RT1803 (FOCUS) | Electronic Viewfinder |
|---|---|---|
| Observe: | | Viewfinder |

This adjustment sets the focus so that sharpness of the picture is best.

1. Aim the camera at the resolution chart.
2. Adjust FOCUS (RT1803) for the best resolution in the viewfinder.

**Contrast and Brightness Adjustment** (Fig. 4-8)

| | | |
|---|---|---|
| Adjust: | RT1804 (CONTRAST) | Electronic Viewfinder |
| | RT1805 (BRIGHT) | Electronic Viewfinder |
| Observe: | | Viewfinder |

This procedure sets the normal viewing level of the picture.

1. Aim the camera at the gray scale chart.
2. Adjust BRIGHT (RT1805) and CONTRAST (RT1804) so that B.W tip graduations in the viewfinder screen match those on the monitor.

## AUTO FOCUS ADJUSTMENT

Note: Set the Auto Focus switch to "AUTO" position.

**SYNC Pulse Width Confirmation** (Figs. 4-9, 4-52)

| | | |
|---|---|---|
| Test Point: | TL4 | Auto Focus |
| Adjust: | SL-A (PULSE WIDTH A) | Auto Focus |
| | SL-B (PULSE WIDTH B) | Auto Focus |

1. Connect the oscilloscope to TL4.
2. Trigger the oscilloscope at V. rate (Use TL3 on the auto focus board.)
3. Confirm that the sync pulse period is 118μS ± 15μS.
4. If the sync pulse period is not 118μS ± 15μS, combine opening and short-circuiting of SL-A and SL-B until the value is 118μS ± 15μS.

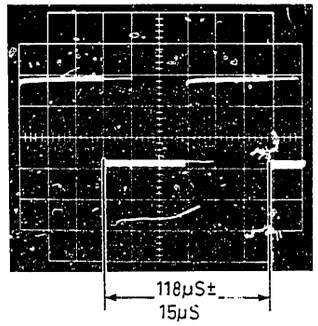



**Fig. 4-52 SYNC Pulse Width Comfirmation**

**LED Output Confirmation** (Figs. 4-9, 4-53)

| | | |
|---|---|---|
| Test Point: | TL5 | Auto Focus |
| Adjust: | SL-C | Auto Focus |
| | SL-D | Auto Focus |

1. Aim the camera at a black object.
2. Set the black object about 2m away from the infrared receiver.
3. Connect the oscilloscope to TL5. (Use GND TL6)
4. Trigger the oscilloscope at V. rate (Use TL3 on the auto focus board.)
5. Confirm that the waveform is 3V ± 0.12V.
6. If the waveform is not 3V ± 0.12V, combine opening and short-circuiting of SL-C and SL-D until the value is 3V ± 0.12V.



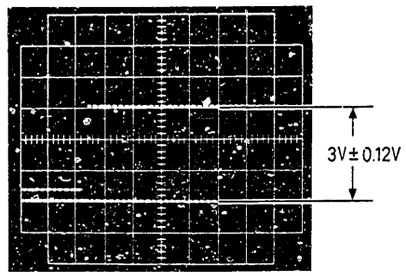



**Fig. 4-53 LED Output Confirmation**

**Offset Adjustment** (Figs. 4-9, 4-54)

| | | |
|---|---|---|
| Test Point: | TL1 (A CHANNEL OUTPUT) | Auto Focus |
| | TL2 (B CHANNEL OUTPUT) | Auto Focus |
| Adjust: | RT3 (A ch OFFSET) | Auto Focus |
| | RT2 (B ch OFFSET) | Auto Focus |

1. Cover the infrared receiver with a black thick paper to shut off the infrared rays.
2. Turn the focus ring forcibly to its infinite (∞) end.
3. Connect the oscilloscope channel-1 to TL2.
4. Connect the oscilloscope channel-2 to TL1.
5. Trigger the oscilloscope at V. rate (Use TL3 on the auto focus board.)
6. Adjust A CHANNEL OFFSET (RT3) so the waveform for Channel-1 is minimized.
7. Adjust B CHANNEL OFFSET (RT2) so the waveform for channel-2 is minimized.

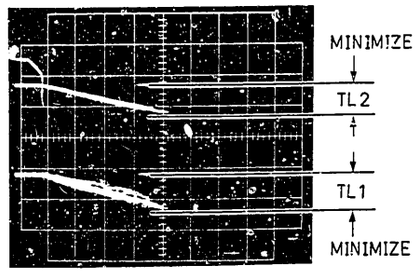



**Fig. 4-55 Offset Adjustment**

**Gain Adjustment** (Figs. 4-9, 4-55, 4-56)

| | | |
|---|---|---|
| Test Point: | TL1 (A CHANNEL OUTPUT) | Auto Focus |
| | TL2 (B CHANNEL OUTPUT) | Auto Focus |
| Adjust: | RT1 (GAIN) | Auto Focus |

1. Aim the camera at the white object and set the zoom out (to Wide angle).
2. Separate the object 50cm from the infrared receiver.
3. Cover the receiver with a thin sheet of transparent paper (tracing paper, etc.)
4. Connect the oscilloscope channel-1 to TL1.
5. Connect the oscilloscope channel-2 TL2 and set it to the Invert mode.
6. Set the oscilloscope to the ADD mode.
7. Adjust GAIN (RT1) so that the difference of the waveforms is minimized.

   Note: When the oscilloscope is provided with the INVERT mode, adjust following item 4 to 7. When the oscilloscope without the INVERT mode is used, adjust starting from item 8.

8. Connect the oscilloscope channel-1 to TL1.
9. Connect the oscilloscope channel-2 to TL2.
10. Adjust GAIN (RT1) to shorten the trailing edge of the waveform (See Fig. 4-56).
11. Remove the thin sheet of transparent paper.

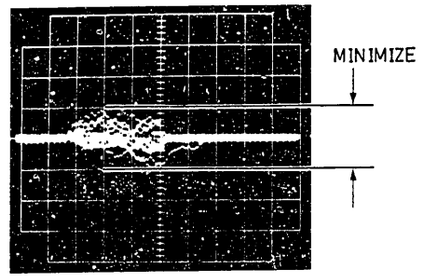



**Fig. 4-55 Gain Adjustment**

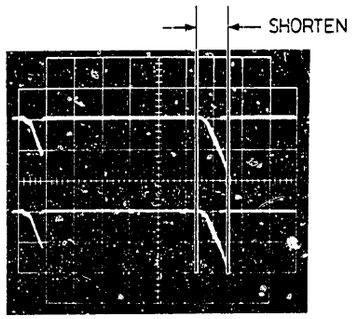



**Fig. 4-56 Gain Adjustment**

**Motor Speed Adjustment** (Fig. 4-9)

Test Point: BOTH TERMINALS OF THE MOTOR
Adjust: RT5 (MOTOR SPEED) Auto Focus

1. Aim the camera at the white object.
2. Separate the object 1m from the infrared receiver.
3. Set the zoomin (to Table photo).
4. Connect the DVM to both terminals of the motor.
5. Adjust MOTOR SPEED (RT5) so that the voltage is 4.3V ± 0.1V.

**Sensor Vertical Position Adjustment** (Fig. 4-57)

Adjust: SENSOR ADJUSTMENT SCREW
Observe: Monitor

1. Aim the camera at the Video Camera Auto Focus Adjust Chart.
2. Separate the object 3m from face of the camera tube.
3. Adjust SENSOR ADJUSTMENT SCREW for optimum focus of the monitored picture.

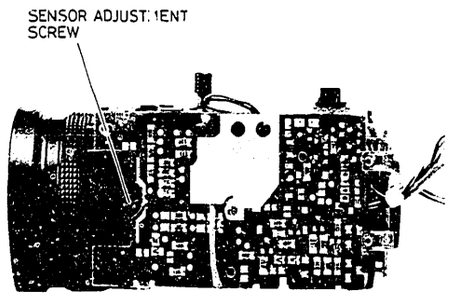



Fig. 4-57 Sensor Vertical Position Adjustment



## ADJUSTMENT PROCEDURE

**Adjustment After Replacing Saticon**

1. Dynamic Focus Release
2. R and B Signal Shading Release
3. R and B Signal Tracking Release
4. Target Voltage Adjustment
5. Beam Current and ABO Adjustment
6. Smear Adjustment
7. Dark Shading Adjustment
8. Dark Offset Adjustment
9. AGC Maximum Gain Adjustment
10. AIC Level Adjustment
11. Backfocus Adjustment
12. Chroma Carrier Level Adjustment
13. Vertical Size Adjustment
14. Horizontal Size and Horizontal Linearity Adjustment
15. Horizontal Center and Vertical Center Adjustment
16. V. Edge Correction Adjustment
17. Chroma Setup Adjustment
18. R and B Signal Gain and Separation Adjustment
19. Focus Preset Adjustment
20. Dynamic Focus Preset Adjustment
21. R and B Signal Shading Preset Adjustment
22. Rand B Signal Tracking Preset Adjustment
23. Focus Adjustment
24. Chroma Carrier Level Confirmation
25. Dynamic Focus Adjustment
26. R and B Signal Shading Adjustment
27. Tracking Adjustment
28. Burst Level Adjustment
29. Chroma Gain and Phase Adjustment
30. Low Light Chroma Gain Adjustment

**Adjustment After Replacing Process Board**

1. Frequency Adjustment
2. Dynamic Focus Release
3. R and B Signal Shading Release
4. R and B Signal Tracking Release
5. Dark Shading Adjustment
6. Dark Offset Adjustment
7. AGC Maximum Gain Adjustment
8. AIC Level Adjustment
9. Chroma Carrier Level Adjustment
10. V. Edge Correction Adjustment
11. Chroma Setup Adjustment
12. R and B Signal Gain and Separation Adjustment
13. Focus Preset Adjustment
14. Dynamic Focus Preset Adjustment
15. R and B Signal Shading Preset Adjustment
16. Rand B Signal Tracking Preset Adjustment
17. Focus Adjustment
18. Chroma Carrier Level Confirmation
19. Dynamic Focus Adjustment
20. R and B Signal Shading Adjustment
21. Tracking Adjustment
22. Burst Level Adjustment
23. Chroma Gain and Phase Adjustment
24. Low Light Chroma Gain Adjustment

**Adjustment After Replacing Deflection Board and Regulator Board**

1. Dynamic Focus Release
2. R and B Signal Shading Release
3. R and B Signal Tracking Release
4. Target Voltage Adjustment
5. Beam Current and ABO Adjustment
6. Dark Shading Adjustment
7. Dark Offset Adjustment
8. AIC Level Adjustment
9. Backfocus Adjustment
10. Chroma Carrier Level Adjustment
11. Vertical Size Adjustment
12. Horizontal Size and Horizontal Linearity Adjustment
13. Horizontal Center and Vertical Center Adjustment
14. Chroma Setup Adjustment
15. R and B Signal Gain and Separation Adjustment
16. Focus Preset Adjustment
17. Dynamic Focus Preset Adjustment
18. R and B Signal Shading Preset Adjustment
19. Tracking Preset Adjustment
20. Focus Adjustment
21. Chroma Carrier Level Confirmation
22. Dynamic Focus Adjustment
23. R and B Signal Shading Adjustment
24. Rand B Signal Tracking Adjustment
25. Burst Level Adjustment
26. Chroma Gain and Phase Adjustment
27. Low Light Chroma Gain Adjustment



## COMPONENT BOARDS LOCATION AND IDENTIFICATION

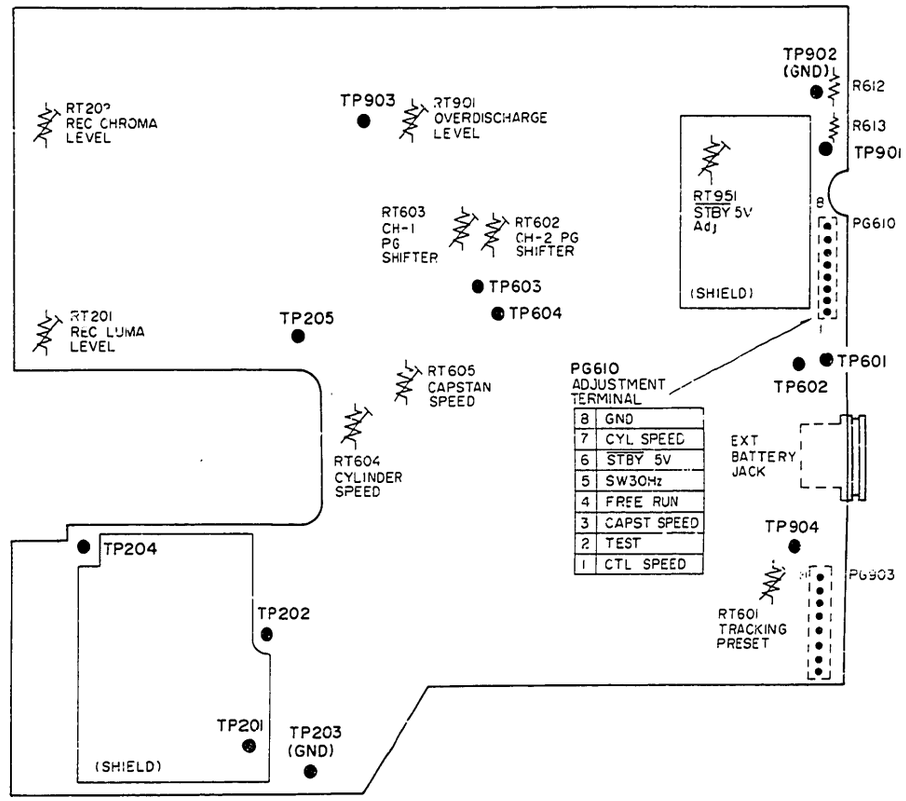



**Fig. 4-101 Main Board (Solder Side)**

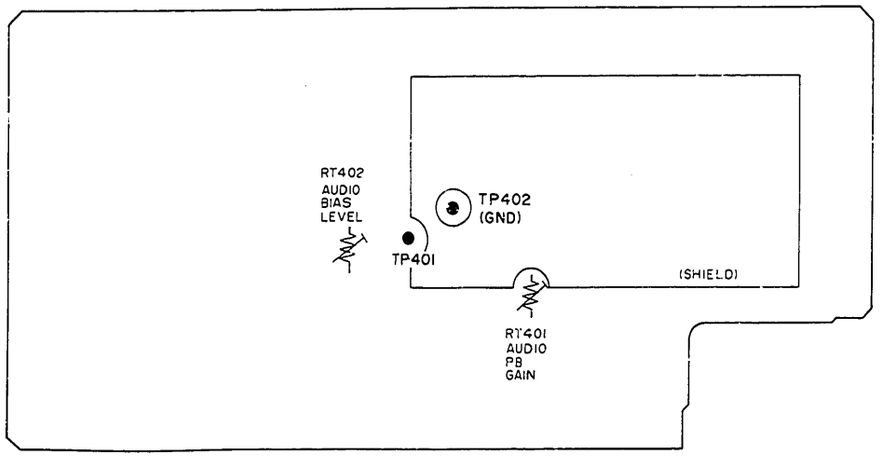



**Fig. 4-102 Audio Board (Solder Side)**

## MAIN CIRCUIT (SWITCHING REGULATOR SECTION)

**5V Adjustment** (Fig. 4-101)

This adjustment sets the output voltage of the 5V Regulator precisely to 5V as the main power supply for the circuit.

Test Point: PG610-6 (5V) Main
Adjust: RT951 (5V Adj) Main

1. Apply the DC12V to the EXT battery jack.
2. Place the instrument in the "Record" mode.
3. Connect the DVM to PG610-6.
4. Adjust the 5V Adj control (RT951) for 5.3V ± 0.05V DC.

**Overdischarge Level Adjustment** (Fig. 4-101)

This adjustment determines the overdischarge detection level. When the battery voltage drops to a specified level, the VTR will automatically shut off.
When the overdischarge detection level is set below 11.5V the battery servicelife will deteriorate. Conversely, when the voltage is adjusted higher than 11.6V the usable time par charge is shortened.

Observe: BATTERY display Left Side
Adjust: RT901 (OVERDISCHARGE LEVEL) Main

1. Turn the OVERDISCHARGE LEVEL control (RT901) fully counterclockwise.
2. Apply the DC11.6V ± 10mV to the EXT battery jack terminal.
3. Place the instrument in the "Record" mode.
4. Turn the OVERDISCHARGE LEVEL control (RT901) clockwise until center and right (F) displays go off.

## MAIN CIRCUIT (SERVO SECTION)

**30Hz Reference Frequency Adjustment** (Fig. 4-101)

This reference frequency is used to correct for fluctuations caused by unevenness between the belt, pulley, capstan motor and capstan shaft.

Test Point: AUDIO OUTPUT (PG903-6) Main

1. Connect the frequency counter to AUDIO OUTPUT (PG903-6).
2. Connect a jumper between TP602 and TP901 on the main circuit board.
3. Load the instrument with an alignment tape and playback the 3kHz audio signal.
4. Confirm that the frequency reading on the counter is 3000Hz ± 15Hz.
5. If the reading is higher than 3015Hz, remove R613. Chack for the presence of R612. If not present, add R612.
6. If the reading is higher than 2985Hz, remove R612. Chack for the presence of R613. If not present, add R613.
7. Remove the jumper.

**Cylinder Motor Speed Adjustment**
(Figs. 4-101, 4-103, 4-104)

This adjustment locks the cylinder servo to the system signal and maintains a constant cylinder speed of 2700 rpm. When not adjusted properly, horizontal stability is degraded and/or picture noise increases.

Test Point: TP603 (CYLINDER SPEED) Main
Adjust: RT604 (CYLINDER SPEED) Main

1. Connect the oscilloscope to TP603. (0.5V/5 msec.cm)
2. Load the instrument with a blank tape and place the instrument in the "Record" mode.
3. Connect the jumper between TP601 and TP901 to release the cylinder phase control.
4. Adjust the CYLINDER MOTOR SPEED control (RT604) so that the sampling pulse stands still or moves slowly on the cylinder tach pulse. (See Fig. 4-103)
5. Remove the jumper between TP601 and TP901 and confirm the sampling pulse is locked in on the trailing edge of the cylinder tach pulse. (See Fig. 4-104)

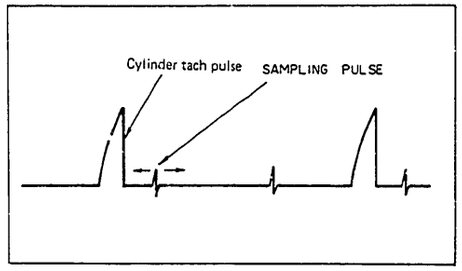



Fig. 4-103 Cylinder Motor Speed (During short circuiting)

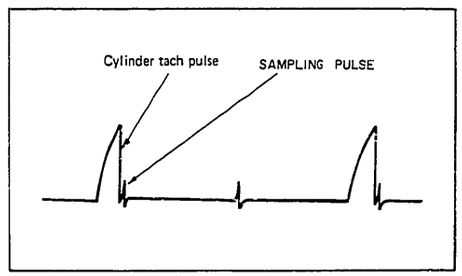



Fig. 4-104 Cylinder Motor Speed (With short-circuiting disconnected)



**Capstan Motor Speed Adjustment**
(Figs. 4-101, 4-105, 4-106)

This adjustment locks the capstan servo to the system signals and maintains a constant tape transport speed. When not adjusted properly, the vertical stability is degraded and/or the picture noise increases.

Test Point: TP604 (CAPSTAN MOTOR SPEED) Main
Adjust: RT605 (CAPSTAN MOTOR SPEED) Main

1. Apply a NTSC color bar signal to EVF jack.
2. Connect the oscilloscope to TP604. (0.5V/5msec.cm)
3. Load the instrument with a blank tape and place the instrument in the "Record" mode.
4. Connect a jumper between TP601 and TP901 to release the capstan phase control.
5. Adjust the CAPSTAN MOTOR SPEED control (RT605) so that the sampling pulse stands still or moves slowly on the cylinder tach pulse. (See Fig. 4-105)
6. Remove the jumper between TP601 and TP901 and confirm the sampling pulse is locked in on the trailing edge of the cylinder tach pulse. (See Fig. 4-106)

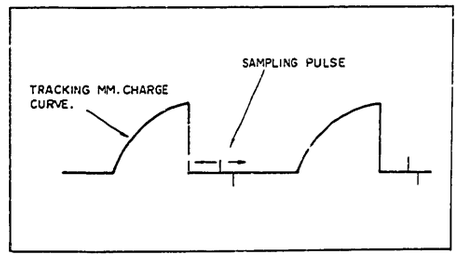



Fig. 4-105 Capstan Motor Speed (During short-circuiting)

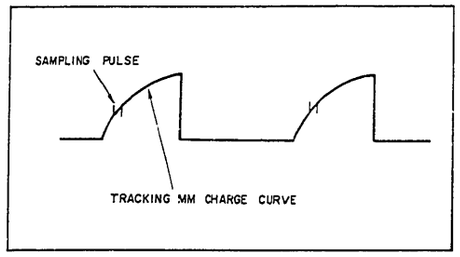



Fig. 4-106 Capstan Motor Speed (With short-circuiting disconnected)

**Head Switching Point Adjustment**
(Figs. 4-101, 4-107)

The pulse generator (PG) shifter determines the video head switching point during playback.
Misadjustment of PG Shifter may cause head switching noise in the picture and/or vertical.

Test Point: VIDEO OUT (TP904) Main
Adjust: RT603 (CH-1 PG SHIFTER) Main
RT602 (CH-2 PG SHIFTER) Main

1. Load the instrument with an alignment tape and playback the color bar signal.
2. Connect the oscilloscope to TP904. (2V/50μsec.cm)
3. Trigger the oscilloscope at SW 30Hz. (Use TP205 on the main circuit board.)
4. Set the oscilloscope to (–) slope and adjust the CH-1 PG SHIFTER (RT603) so that the leading edge of the SW 30Hz signal is placed 6.5H ± 0.5H (horizontal) lines before the start of vertical sync.
5. Set the oscilloscope to (+) slope and adjust the CH-2 PG SHIFTER (RT602) so that the leading edge of the SW 30Hz signal is placed 6.5H ± 0.5H (horizontal) lines before the start of vertical sync.

Note: The waveform of CH-1 and CH-2 video signals in the diagram may be opposite depending on the alignment tape.

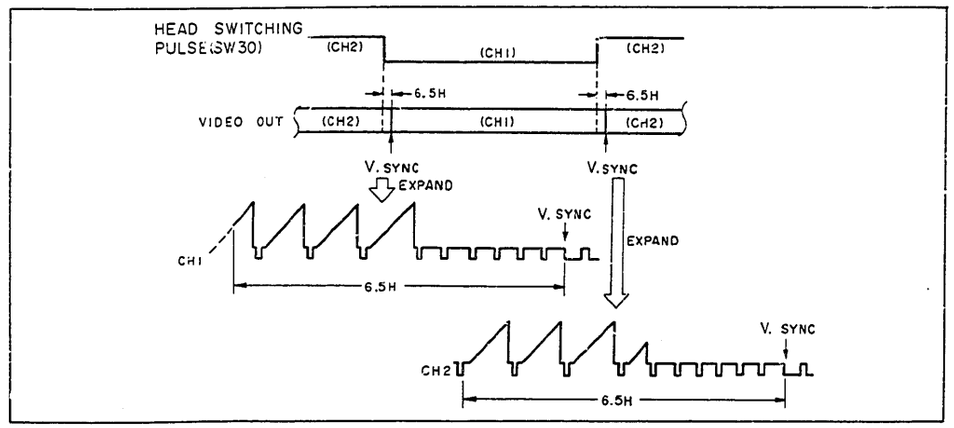



Fig. 4-107 PG Shifter

**Tracking Preset Adjustment** (Figs. 4-101, 4-108)

This adjustment is performed to obtain tracking during playback of a tape recordedon the same instrument. When this adjustment is incomplete, noise may conspicuous with the tracking control placed in the detent position or noise may not be removed by the tracking control.

| | | |
|---|---|---|
| Test Points: | VIDEO OUT (TP904) | Main |
| | TP604 (CAPSTAN SERVO) | Main |
| Adjust: | RT601 (TRACKING PRESET) | Main |

1. Set the TRACKING control located on the left side to the mechanical center (center click) position.
2. Apply a NTSC color bar signal to the EVF jack.
3. Connect the Channel-1 of oscilloscope to TP904. (1V/0.5msec.cm)
4. Connect the channel-2 of oscilloscope to TP604. (0.5V/0.5msec.cm)
5. Trigger the oscilloscope at SW 30Hz. (Use TP205 on the main circuit board.)
6. Set the oscilloscope to (–) slope.
7. Adjust the TRACKING PRESET control (RT601) so that the CTL pulse and the vertical sync back porch of the video signal match.

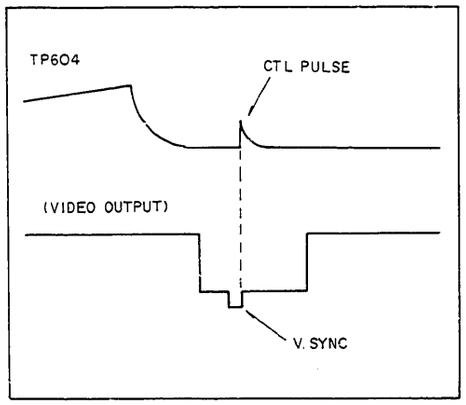



Fig. 4-108 Tracking Preset

## MAIN CIRCUIT (LUMA/CHROMA SECTION)

**Record Chroma Level Adjustment**
(Figs. 4-101, 4-109, 4-110, 4-111)

Optimum record color level is regulated by this adjustment. If the record chroma level is too high, diamond beats can be seen in the screen. If the level is too low, the color degraded.

| | | |
|---|---|---|
| Test Point: | TP201 (REC CURRENT) | Main |
| Adjust: | RT202 (REC CHROMA LEVEL) | Main |

1. Apply a NTSC color bar signal to EVF jack.
2. Adjust the input color bar signal level for 1Vp-p measured at the video input jack.
3. Conenct the oscilloscope to TP201. (10mV/20μsec.cm)
4. Trigger the oscilloscope at 15Hz. (Use TP202 on Main circuit board.)
5. Load the instrument with a blank tape and place in the "Record" mode.
6. Turn the REC LUMA LEVEL control (RT201) fully counterclockwise. (As seen from solder side.)
7. Check the upper cylinder for number stamped on the top. (See Fig. 4-109)
8. Adjust REC CHROMA LEVEL control (RT202) as shown in the chart. (See Figs. 4-110, 4-111)
9. Perform the record luma level adjustment.

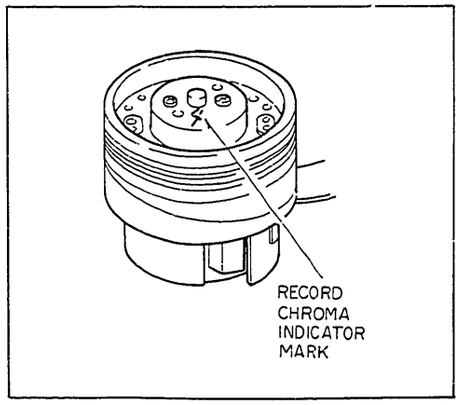



Fig. 4-109 Upper Cylinder Mark Location

| MARK | LEVEL |
|---|---|
| 0 | 35mVp-p |
| 2 | 40mVp-p |
| 4 | 45mVp-p |

Fig. 4-110 Record Chroma Level

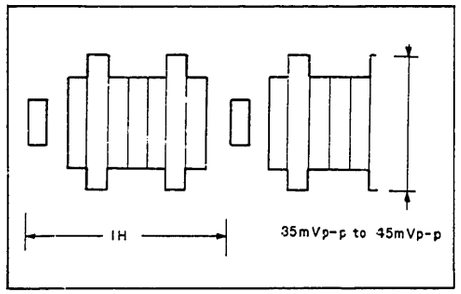



Fig. 4-111 Record Chroma Level

**Record Luminance Level Adjustment** (Figs. 4-101, 4-112)

Optimum record luma level is regulated by this adjustment. If the record luma level is too high, video may overload. If the level is too low, the S/N ratio deteriorate. Record chroma level should be set prior to adjusting the record luma level.

| | | |
|---|---|---|
| Test Point: | TP201 (REC CURRENT) | Main |
| Adjust: | RT201 (REC LUMA LEVEL) | Main |

1. Apply a NTSC color bar signal to EVF jack.
2. Adjust the input color bar signal level for 1Vp-p measured at the video input jack.
3. Connect the oscilloscope to TP201. (50mV/20μsec.cm)
4. Load the instrument with a blank tape and place in the "Record" mode.
5. Adjust REC LUMA LEVEL control (RT201) for 150mVp-p ± 10mV.

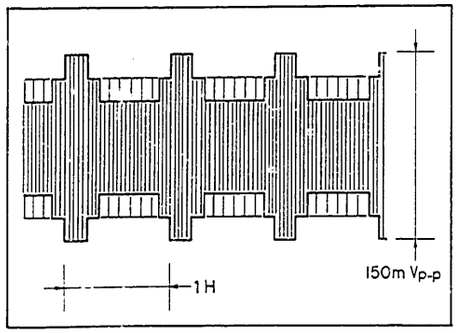



Fig. 4-112 Record Luminance Level

## AUDIO CIRCUIT

**Audio Playback Gain Adjustment**

This adjustment sets the output level of the audio signal to the specified level.

| | | | |
|---|---|---|---|
| Test Points: | PG903-6 | (AUDIO OUTPUT) | Main |
| | PG903-4 | (AUDIO GND) | Main |
| Adjust: | RT401 | (AUDIO PB GAIN) | Audio |

1. Conenct the millivoltmeter to PG903-6. (Used GND PG903-4)
2. Load the instrument with an alignment tape and playback a 1kHz audio signal.
3. Adjust the AUDIO PB GAIN control (RT401) for 90mVrms.

**Audio Bias Level Adjustment**

This adjustment optimizes the audio record bias. When the audio record bias is too low, high frequencies are increased resulting in distortion. When the level is too high, high frequences are attenuated.

| | | | |
|---|---|---|---|
| Test Points: | TP401 | (REC BIAS) | Audio |
| | TP402 | (BIAS GND) | Audio |
| Adjust: | RT402 | (AUDIO BIAS LEVEL) | Audio |

1. Connect the millivoltmeter to TP401. (Used GND TP402)
2. Load the instrument with a blank tape and place in the "Record" mode.
3. Adjust AUDIO BIAS LEVEL control (RT402) for 2.6mV ± 0.1mVrsms.

## COMPONENT BOARD LOCATION AND INDENTIFICATION

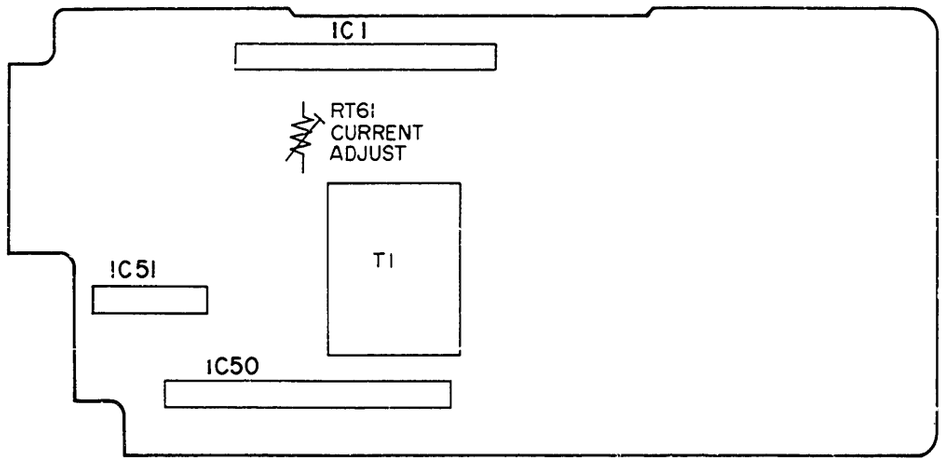



Fig. 4-201 Regulator Board (Component Side)

## AC ADAPTER/CHARGER SECTION

**Current Adjustment** (Figs. 4-201, 4-202)

1. Check that the power voltage is 120V.
2. Turn the CURRENT ADJUST control (RT61) fully counterclockwise.
3. Connect the load resistor (10 ohm to 15 ohm, 20W) to the adapter charge terminal (+) and GND.
4. Connect the DC ammeter between the adapter charge terminal (+) and load resistor.
5. Pressing the charge sense switch (SW 2).
6. Adjust CURRENT ADJUST (RT61) so that the DC ammeter reads 1.25A.

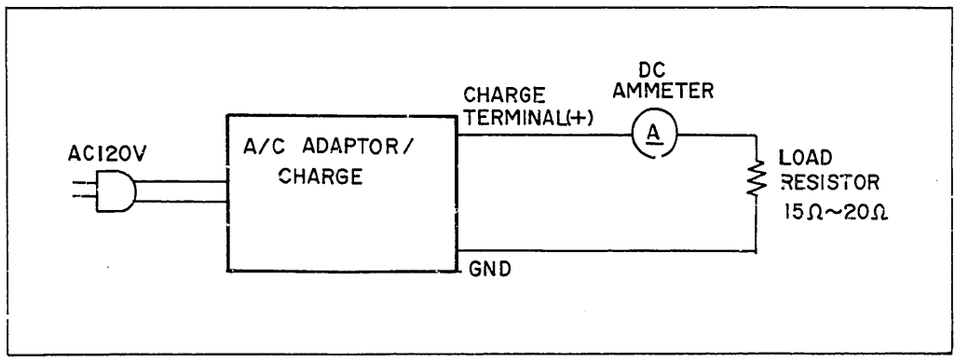
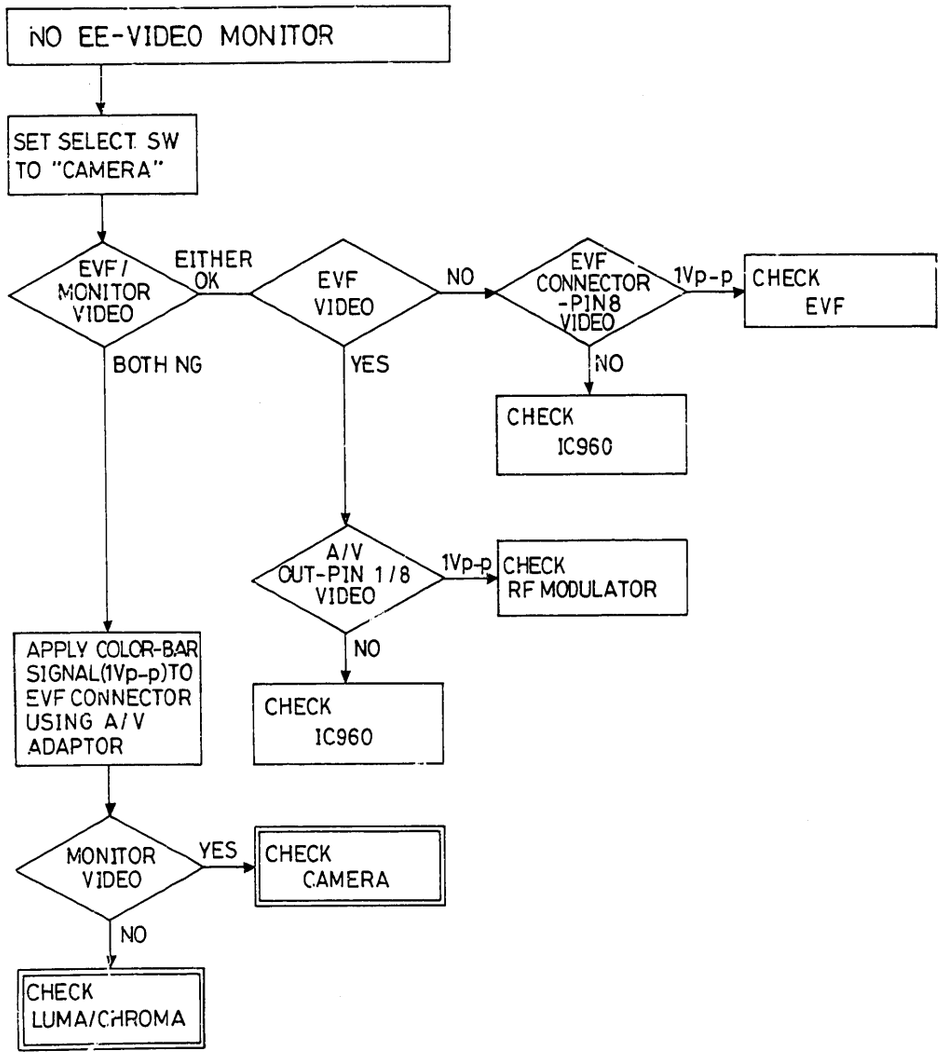
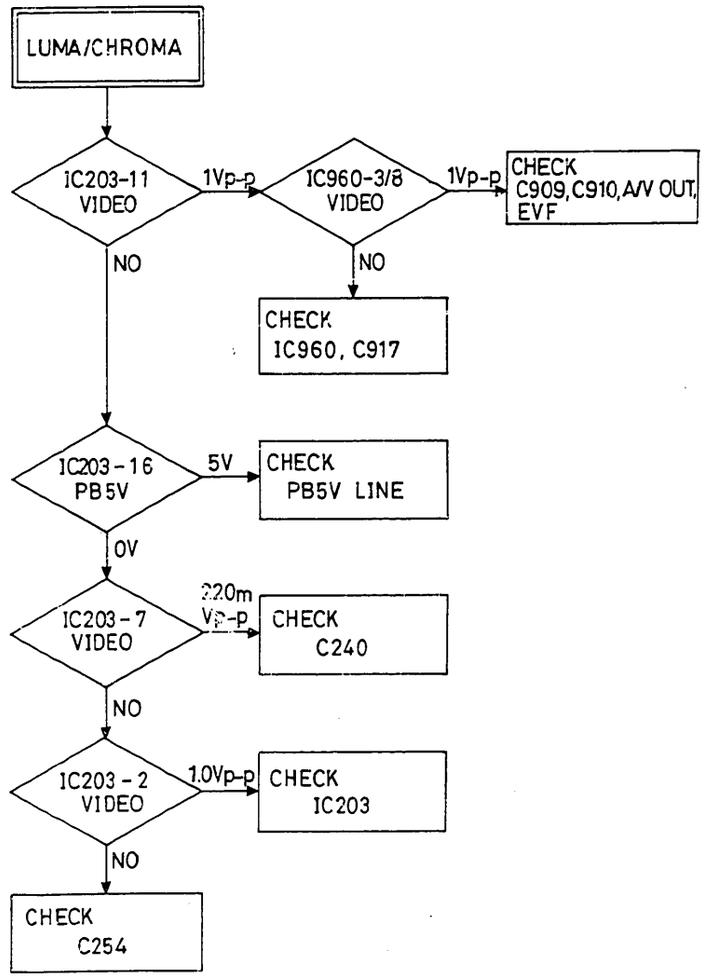


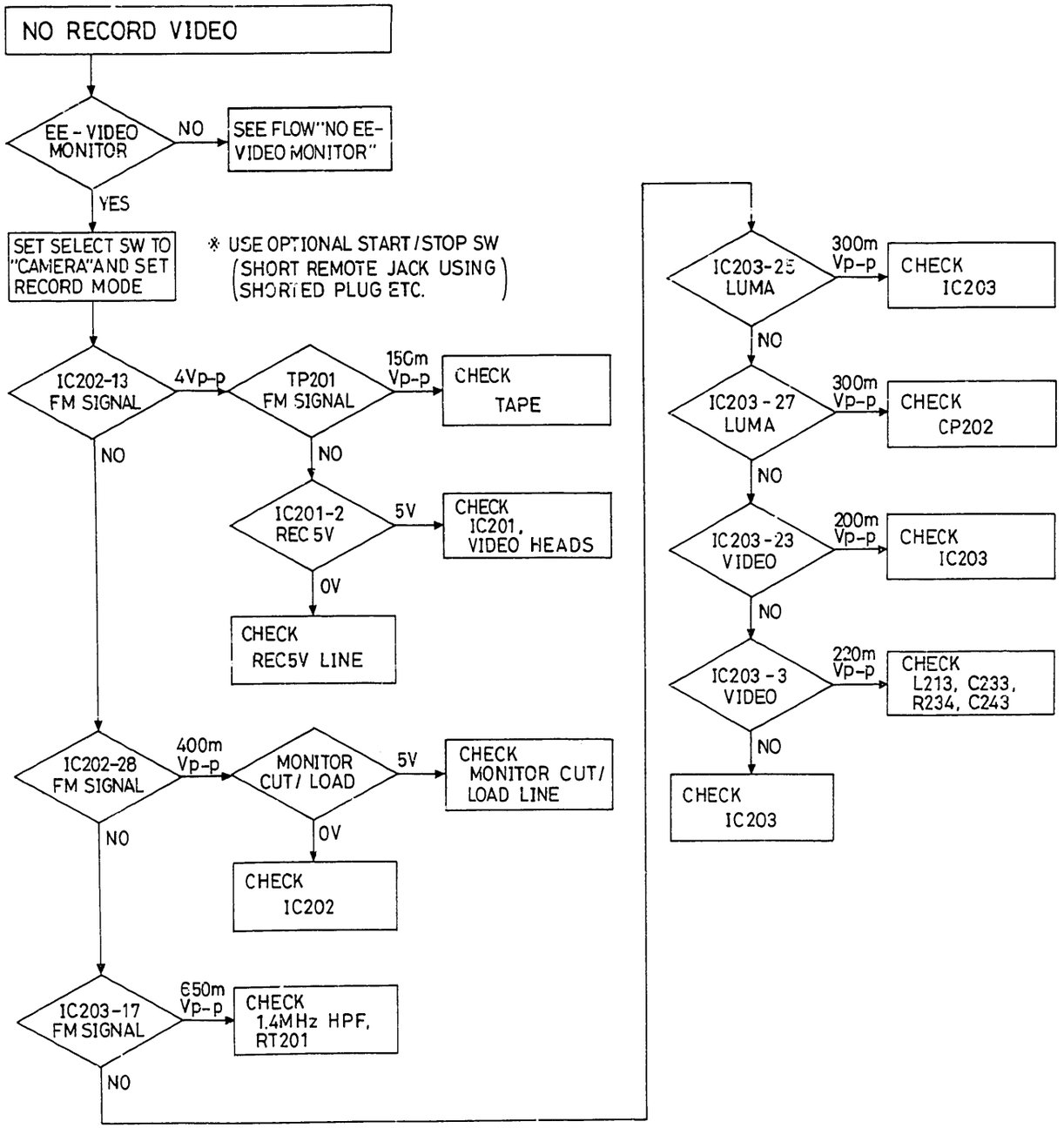

Fig. 4-202 Current Adjustment

1. Nc EE-video monitor

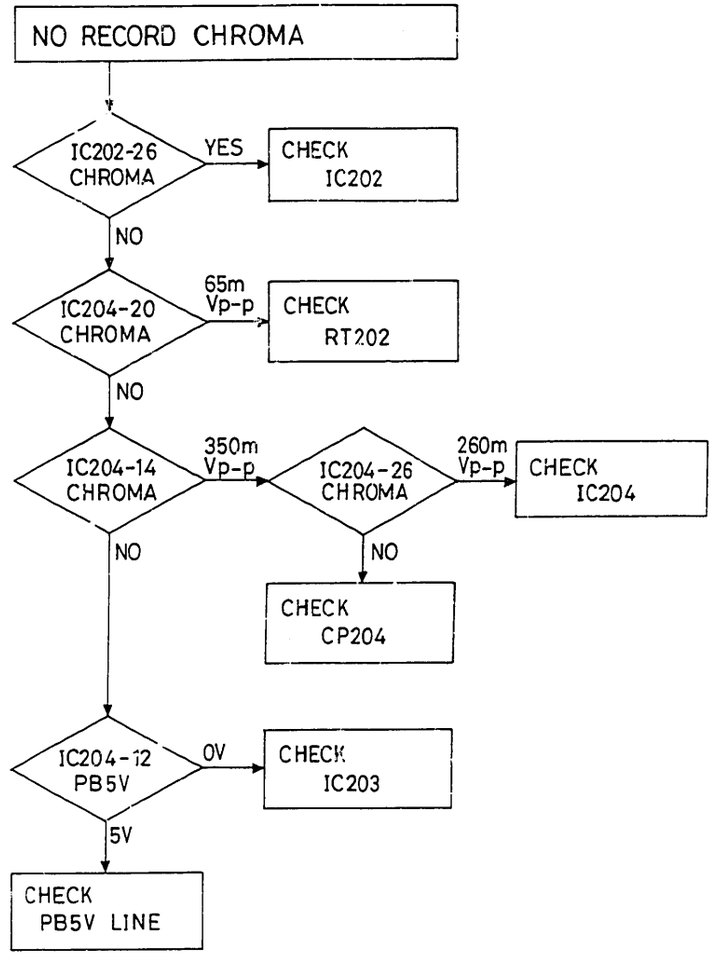


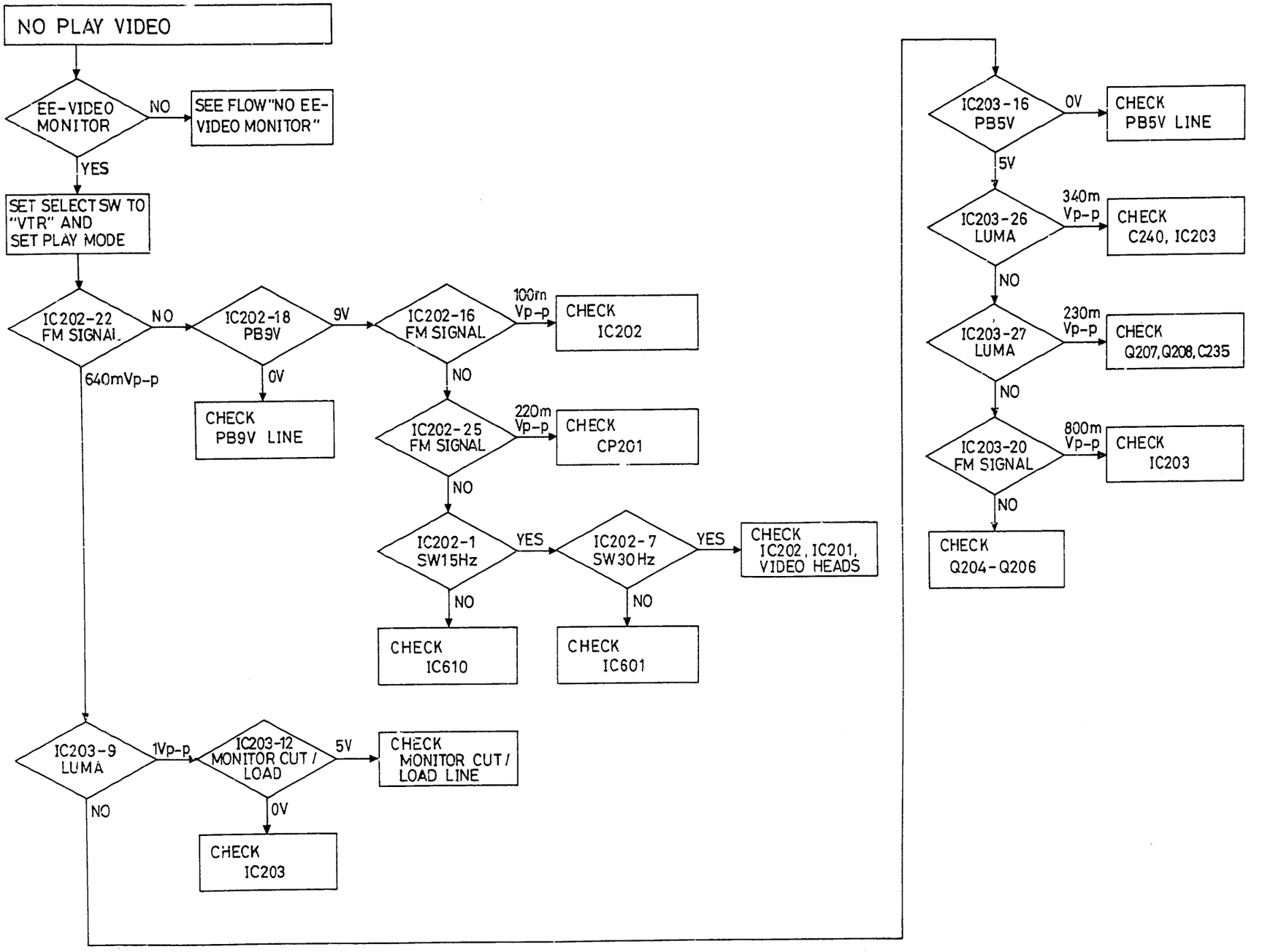
2. No record video



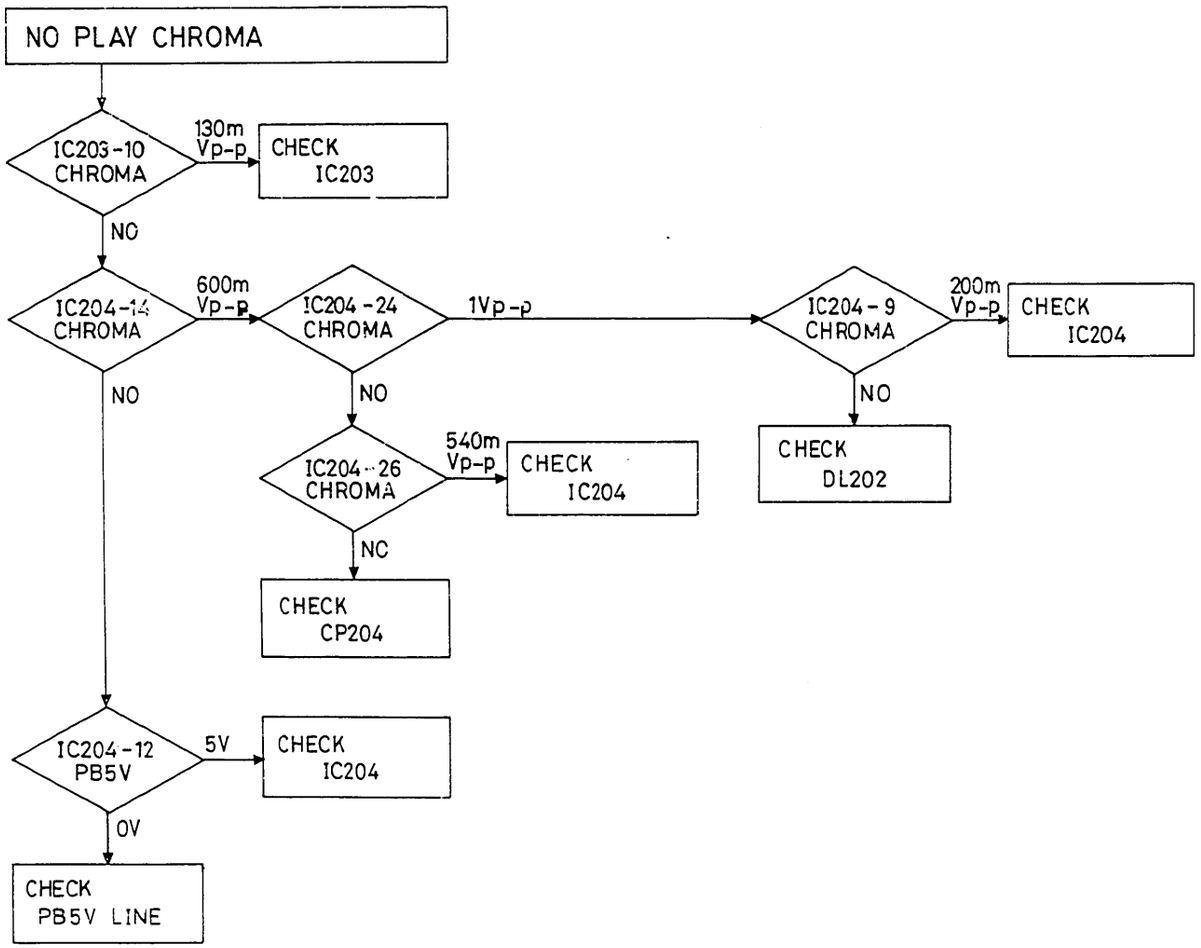

3. No record camera



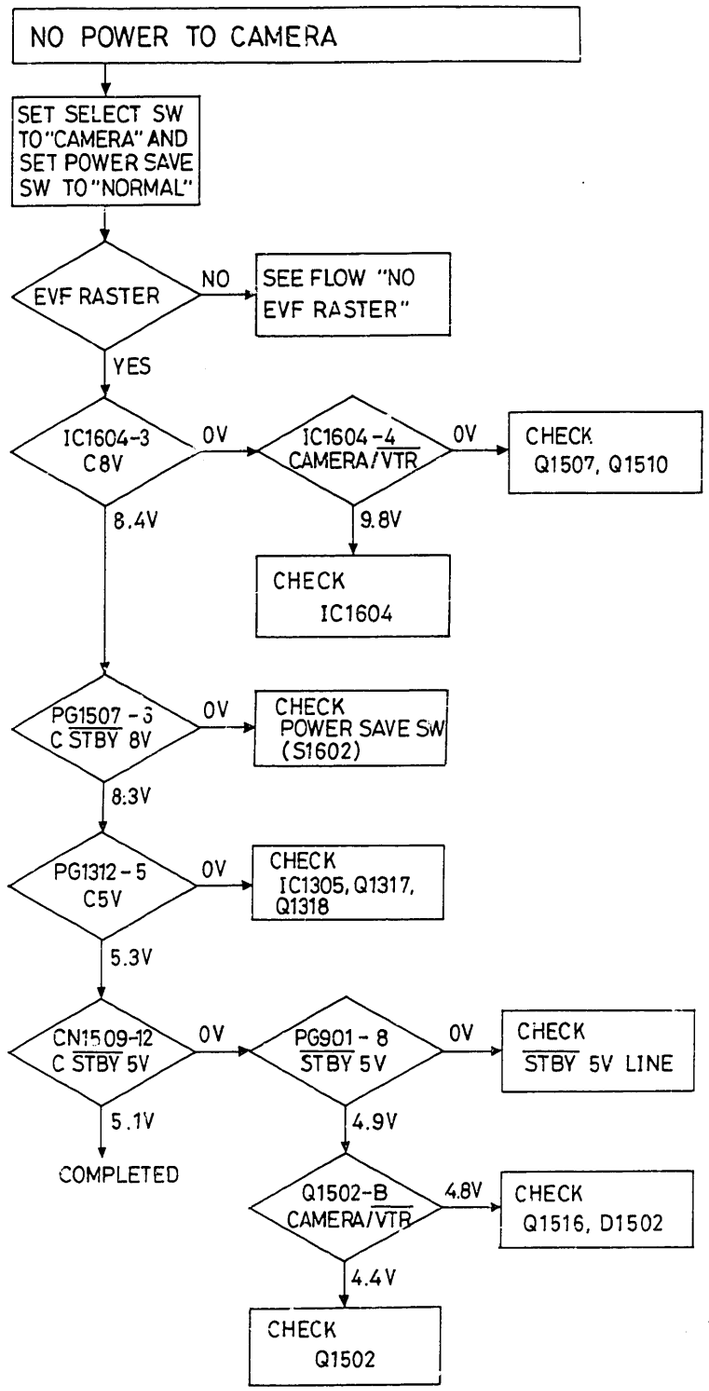
4. No play video



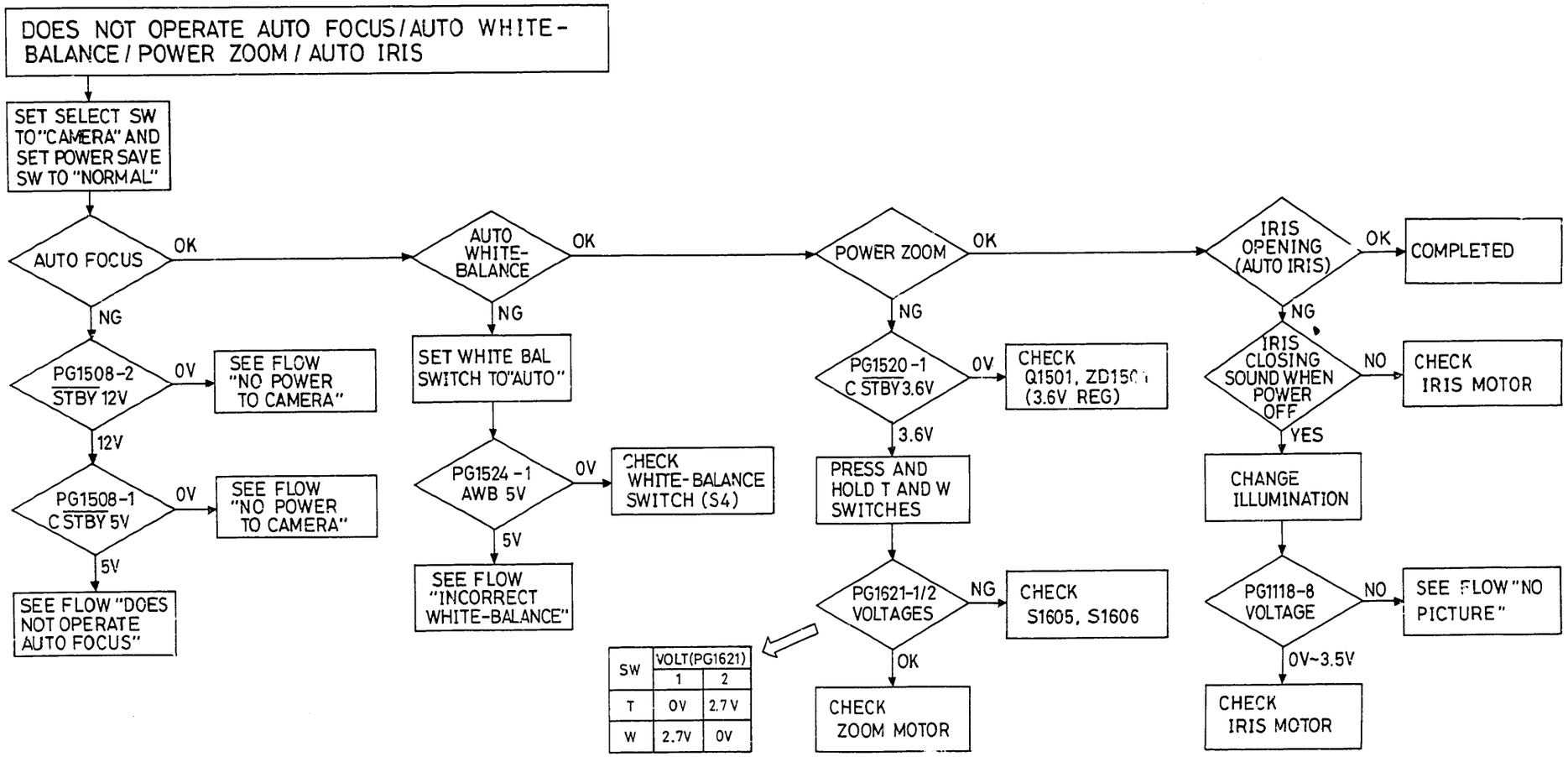
5. No play chroma



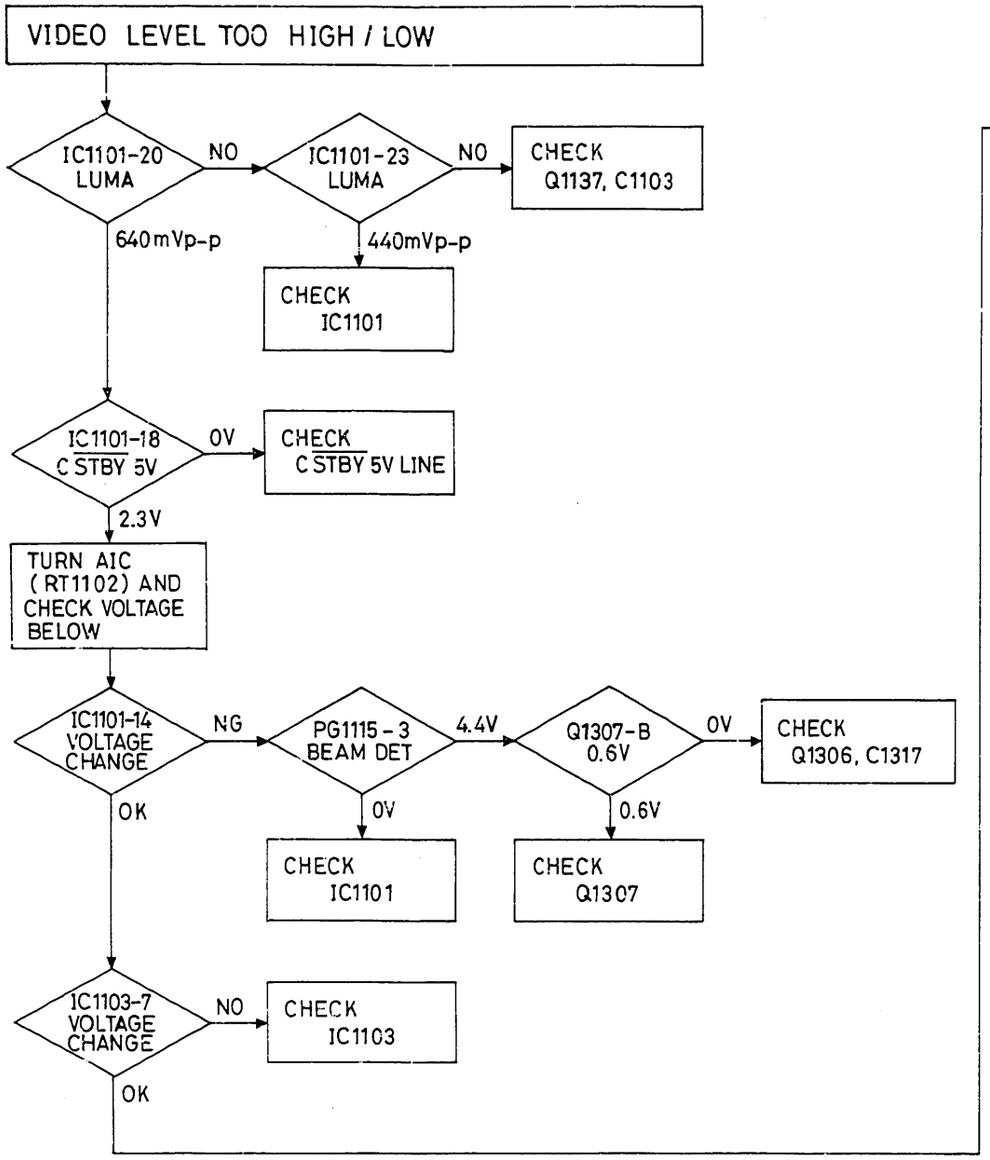

6. No power to camera



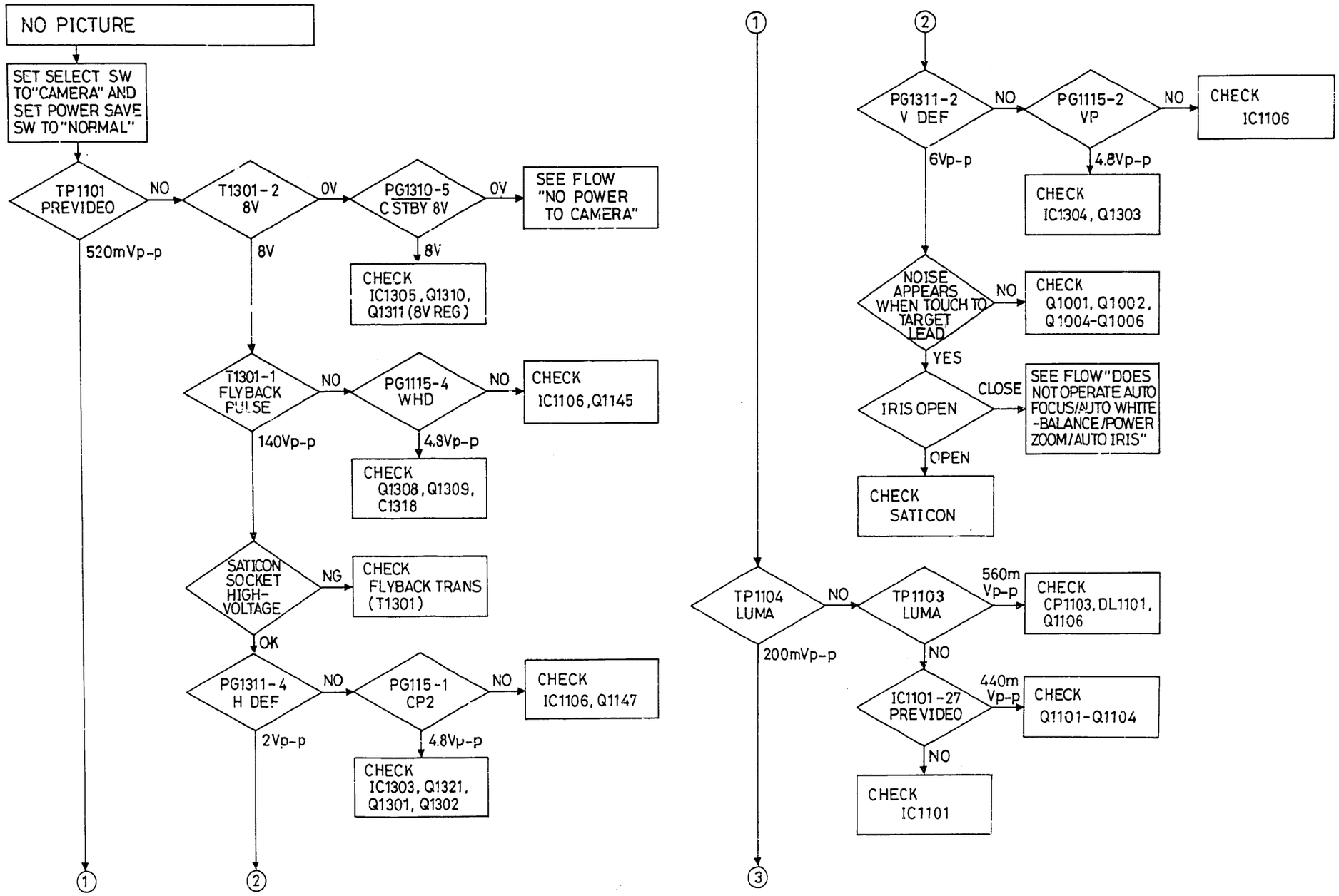
7. Does not operate auto focus/auto white-balance/power zoom/auto iris

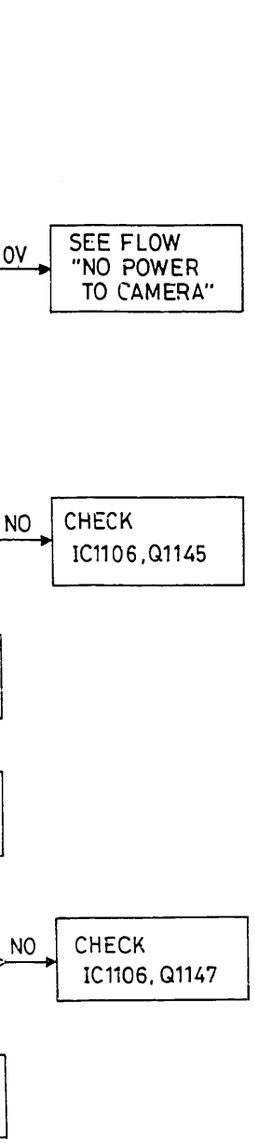


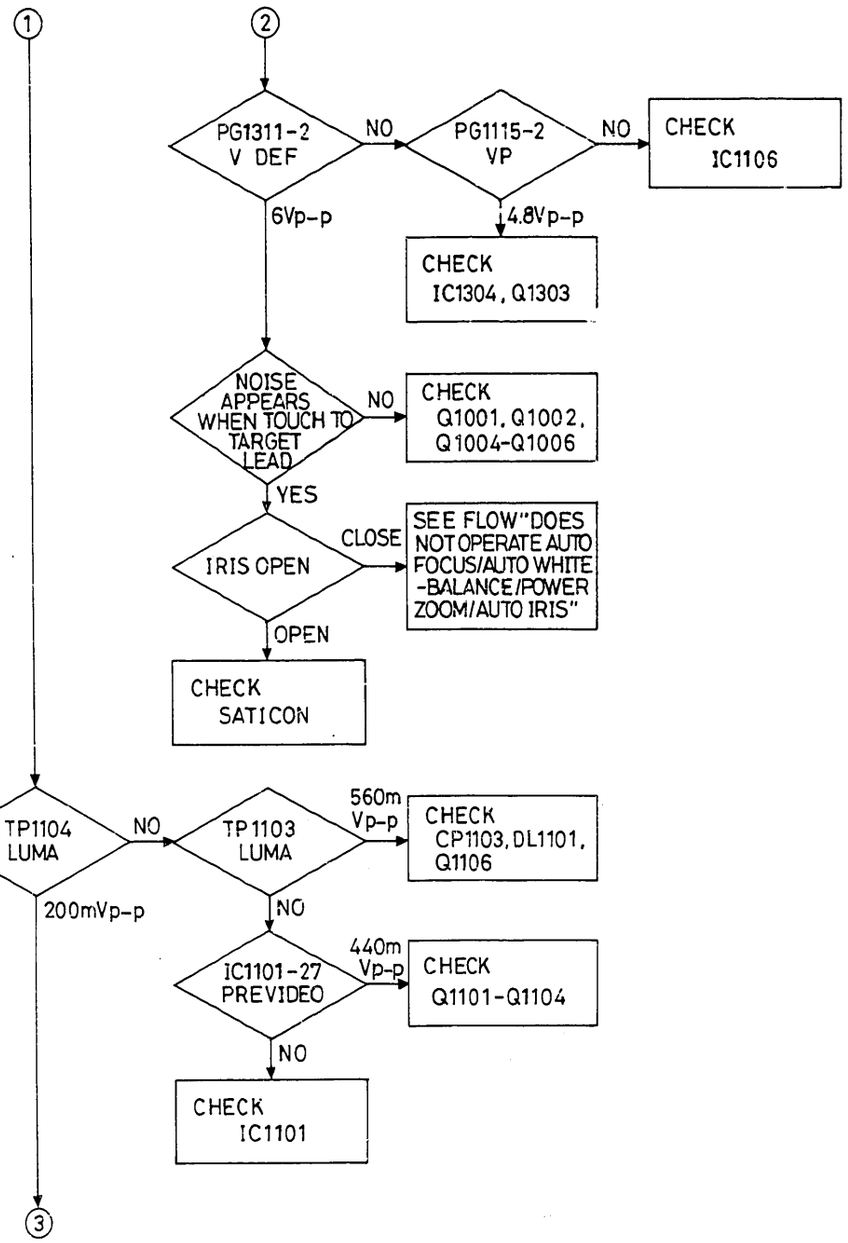
8. Video level too high/low

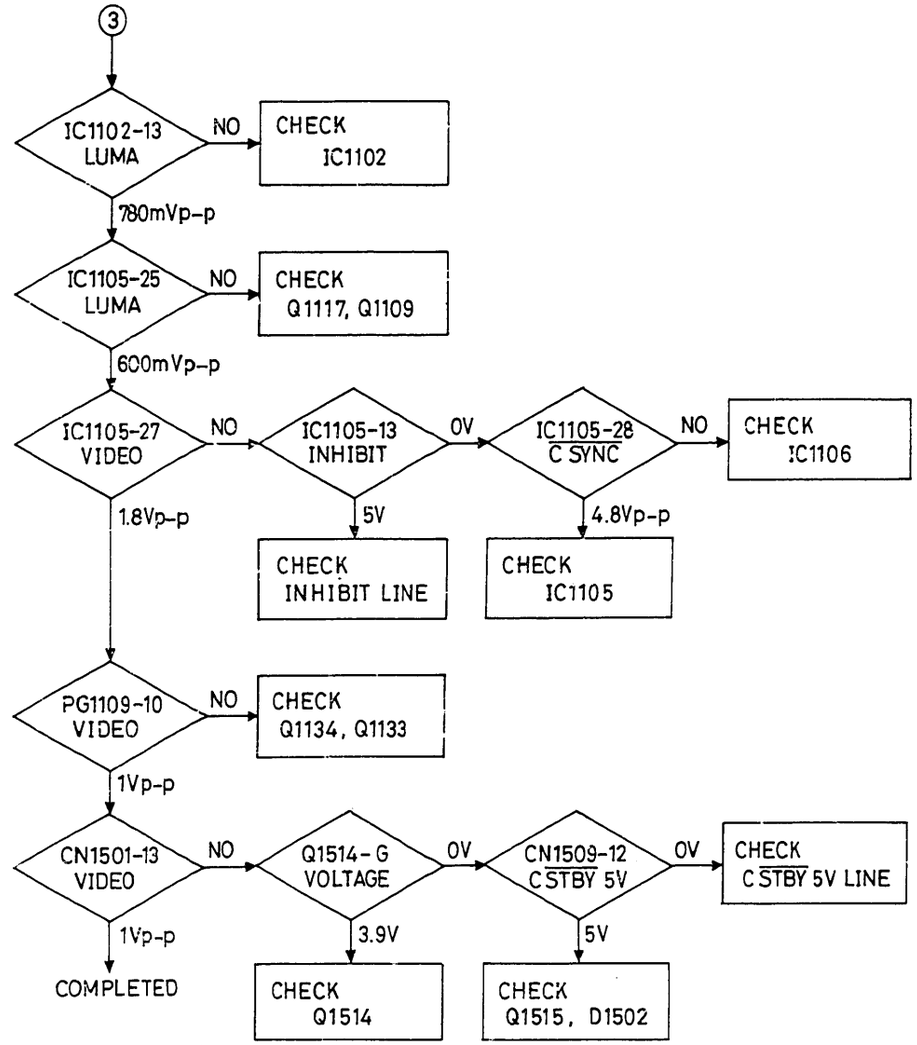


## 9. No picture

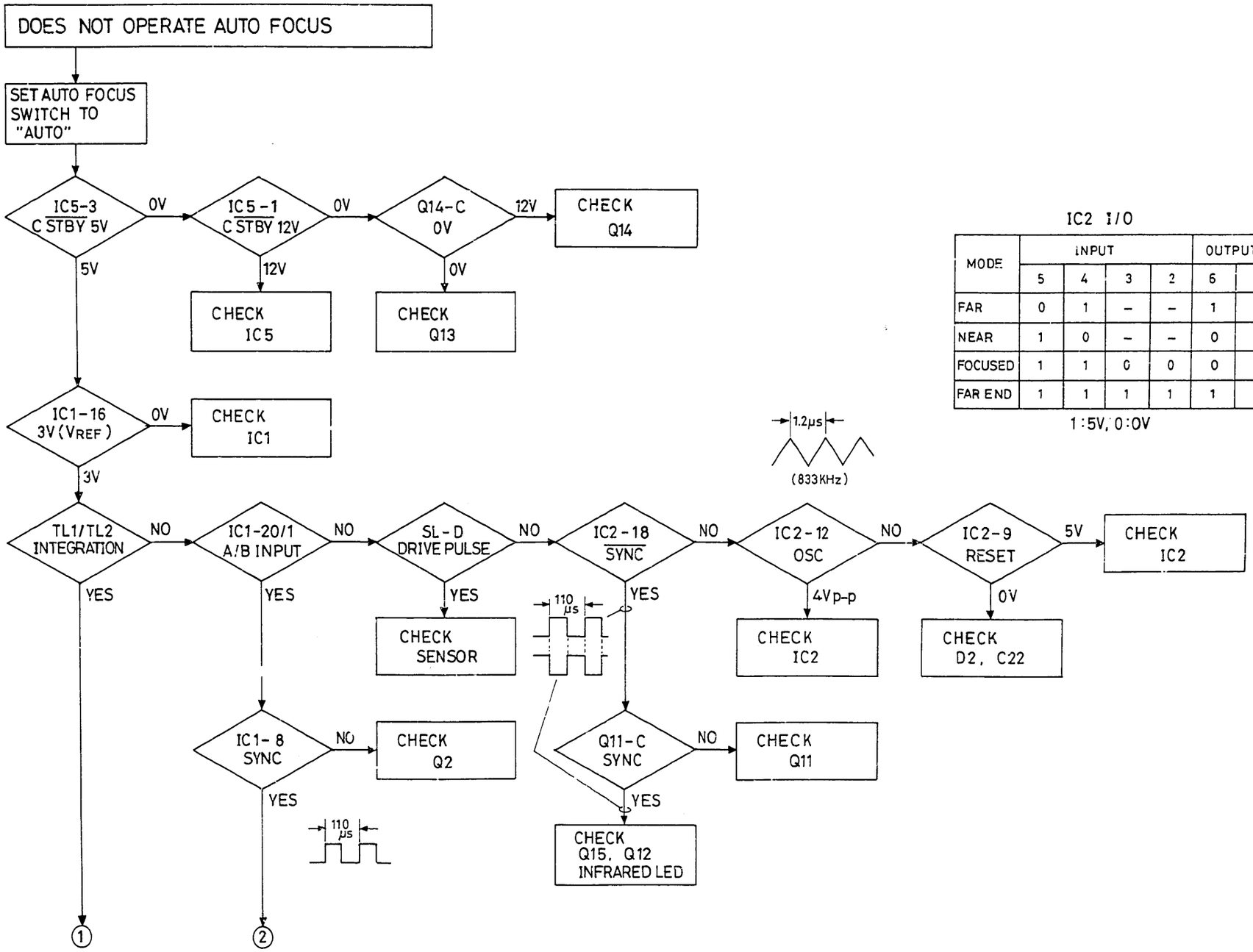

NO PICTURE
SET SELECT SW TO "CAMERA" AND SET POWER SAVE SW TO "NORMAL"
TP1101 PREVIDEO
NO
520mVp-p
T1301-2 8V
0V
8V
PG1310-5 CSTBY 8V
0V
8V
SEE FLOW "NO POWER TO CAMERA"
CHECK IC1305, Q1310, Q1311 (8V REG)
T1301-1 FLYBACK PULSE
NO
140Vp-p
PG1115-4 WHD
NO
4.8Vp-p
CHECK IC1106, Q1145
CHECK Q1308, Q1309, C1318
SATICON SOCKET HIGH-VOLTAGE
NG
CHECK FLYBACK TRANS (T1301)
OK
PG1311-4 H DEF
NO
2Vp-p
PG115-1 CP2
NO
4.8Vp-p
CHECK IC1106, Q1147
CHECK IC1303, Q1321, Q1301, Q1302
1
2
PG1311-2 V DEF
NO
6Vp-p
PG1115-2 VP
NO
4.8Vp-p
CHECK IC1106
CHECK IC1304, Q1303
NOISE APPEARS WHEN TOUCH TO TARGET LEAD
NO
CHECK Q1001, Q1002, Q1004-Q1006
YES
IRIS OPEN
CLOSE
SEE FLOW "DOES NOT OPERATE AUTO FOCUS/AUTO WHITE-BALANCE/POWER ZOOM/AUTO IRIS"
OPEN
CHECK SATICON
TP1104 LUMA
NO
200mVp-p
TP1103 LUMA
560m Vp-p
CHECK CP1103, DL1101, Q1106
NO
IC1101-27 PREVIDEO
440m Vp-p
CHECK Q1101-Q1104
NO
CHECK IC1101
2
3


0V
SEE FLOW "NO POWER TO CAMERA"
NO
CHECK IC1106, Q1145
NO
CHECK IC1106, Q1147


1
2
PG1311-2 V DEF
NO
PG1115-2 VP
NO
CHECK IC1106
6Vp-p
4.8Vp-p
CHECK IC1304, Q1303
NOISE APPEARS WHEN TOUCH TO TARGET LEAD
NO
CHECK Q1001, Q1002, Q1004-Q1006
YES
IRIS OPEN
CLOSE
SEE FLOW "DOES NOT OPERATE AUTO FOCUS/AUTO WHITE -BALANCE/POWER ZOOM/AUTO IRIS"
OPEN
CHECK SATICON
TP1104 LUMA
NO
TP1103 LUMA
560m Vp-p
CHECK CP1103, DL1101, Q1106
200mVp-p
NO
IC1101-27 PREVIDEO
440m Vp-p
CHECK Q1101-Q1104
NO
CHECK IC1101
3


3
IC1102-13 LUMA
NO
CHECK IC1102
780mVp-p
IC1105-25 LUMA
NO
CHECK Q1117, Q1109
600mVp-p
IC1105-27 VIDEO
NO
IC1105-13 INHIBIT
0V
IC1105-28 C SYNC
NO
CHECK IC1106
1.8Vp-p
5V
4.8Vp-p
CHECK INHIBIT LINE
CHECK IC1105
PG1109-10 VIDEO
NO
CHECK Q1134, Q1133
1Vp-p
CN1501-13 VIDEO
NO
Q1514-G VOLTAGE
0V
CN1509-12 C STBY 5V
0V
CHECK C STBY 5V LINE
1Vp-p
3.9V
5V
COMPLETED
CHECK Q1514
CHECK Q1515, D1502

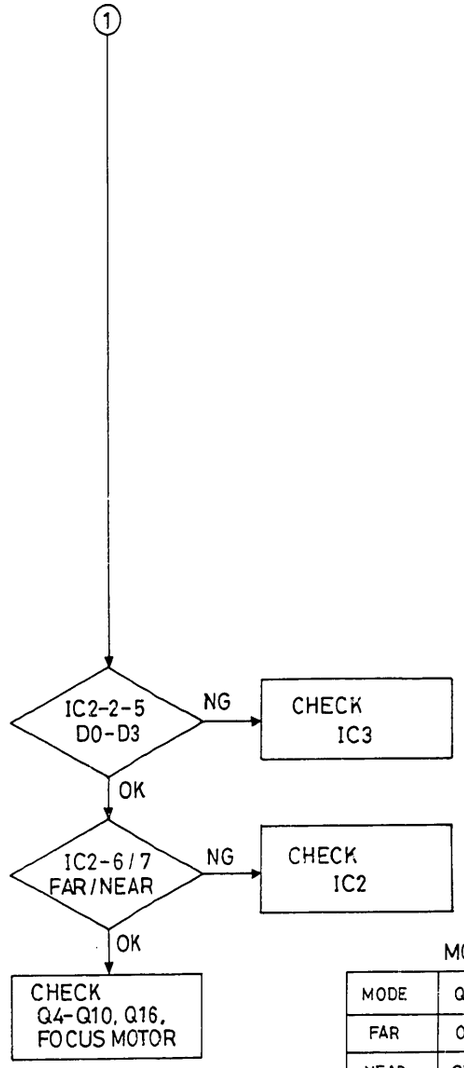
10. Does not operate auto focus




IC2 I/O

| MODE | INPUT | | | | OUTPUT | |
|---|---|---|---|---|---|---|
| | 5 | 4 | 3 | 2 | 6 | 7 |
| FAR | 0 | 1 | – | – | 1 | 0 |
| NEAR | 1 | 0 | – | – | 0 | 1 |
| FOCUSED | 1 | 1 | 0 | 0 | 0 | 0 |
| FAR END | 1 | 1 | 1 | 1 | 1 | 0 |

1:5V, 0:0V




MOTOR

| MODE | Q5 | |
|---|---|---|
| FAR | ON | O |
| NEAR | OFF | |

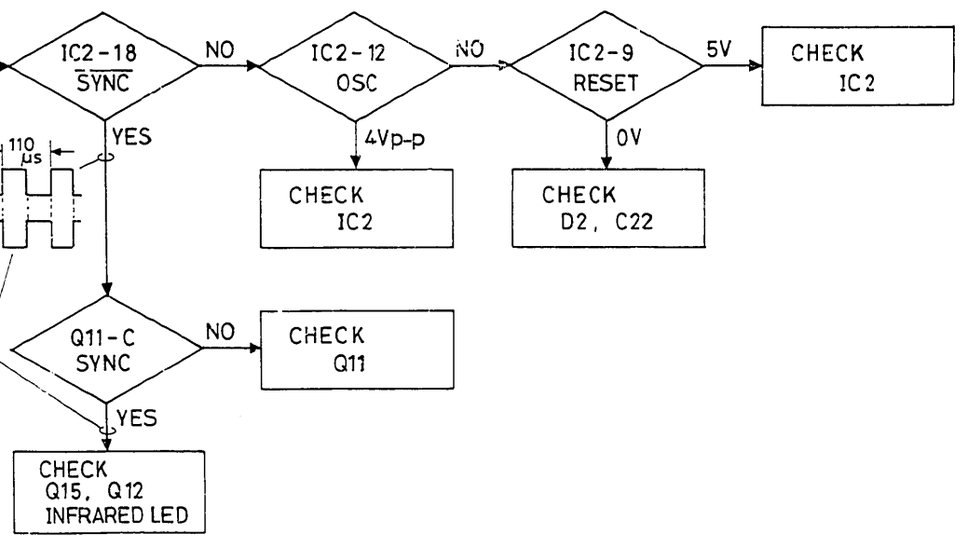
CHECK
Q14

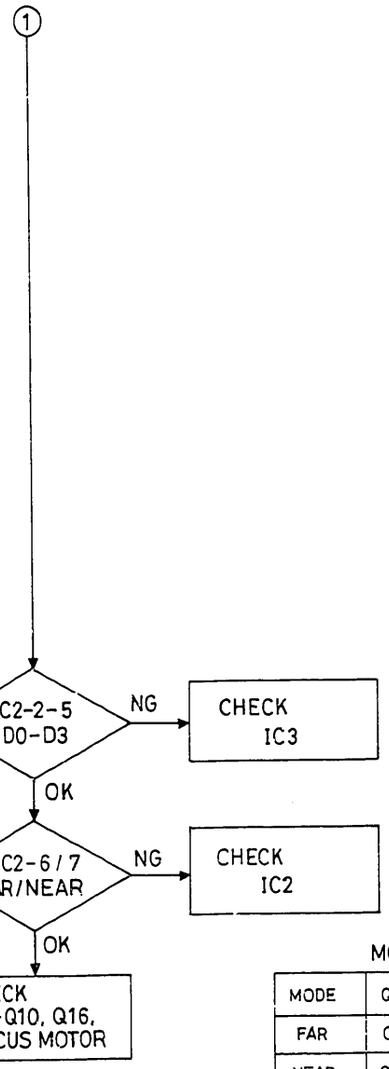
IC2 I/O

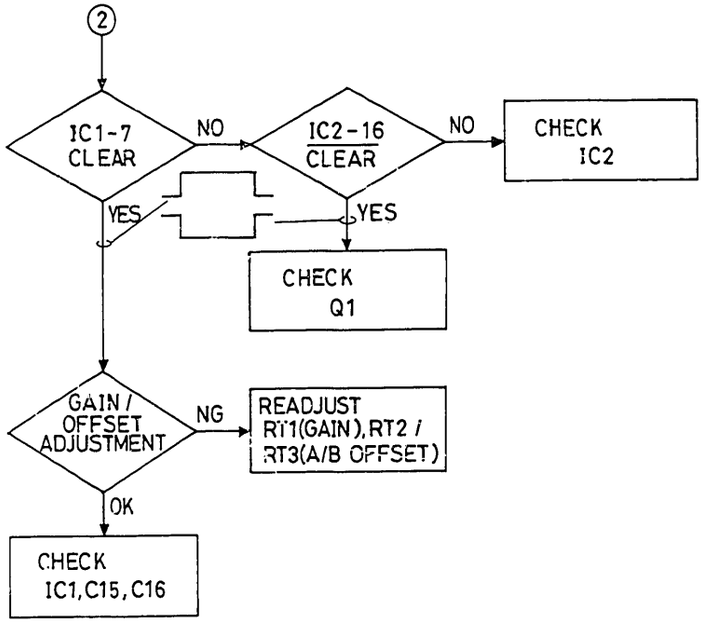
| MODE | INPUT | | | | OUTPUT | |
|---|---|---|---|---|---|---|
| | 5 | 4 | 3 | 2 | 6 | 7 |
| FAR | 0 | 1 | – | – | 1 | 0 |
| NEAR | 1 | 0 | – | – | 0 | 1 |
| FOCUSED | 1 | 1 | 0 | 0 | 0 | 0 |
| FAR END | 1 | 1 | 1 | 1 | 1 | 0 |

1:5V, 0:0V

1.2μs
(833KHz)



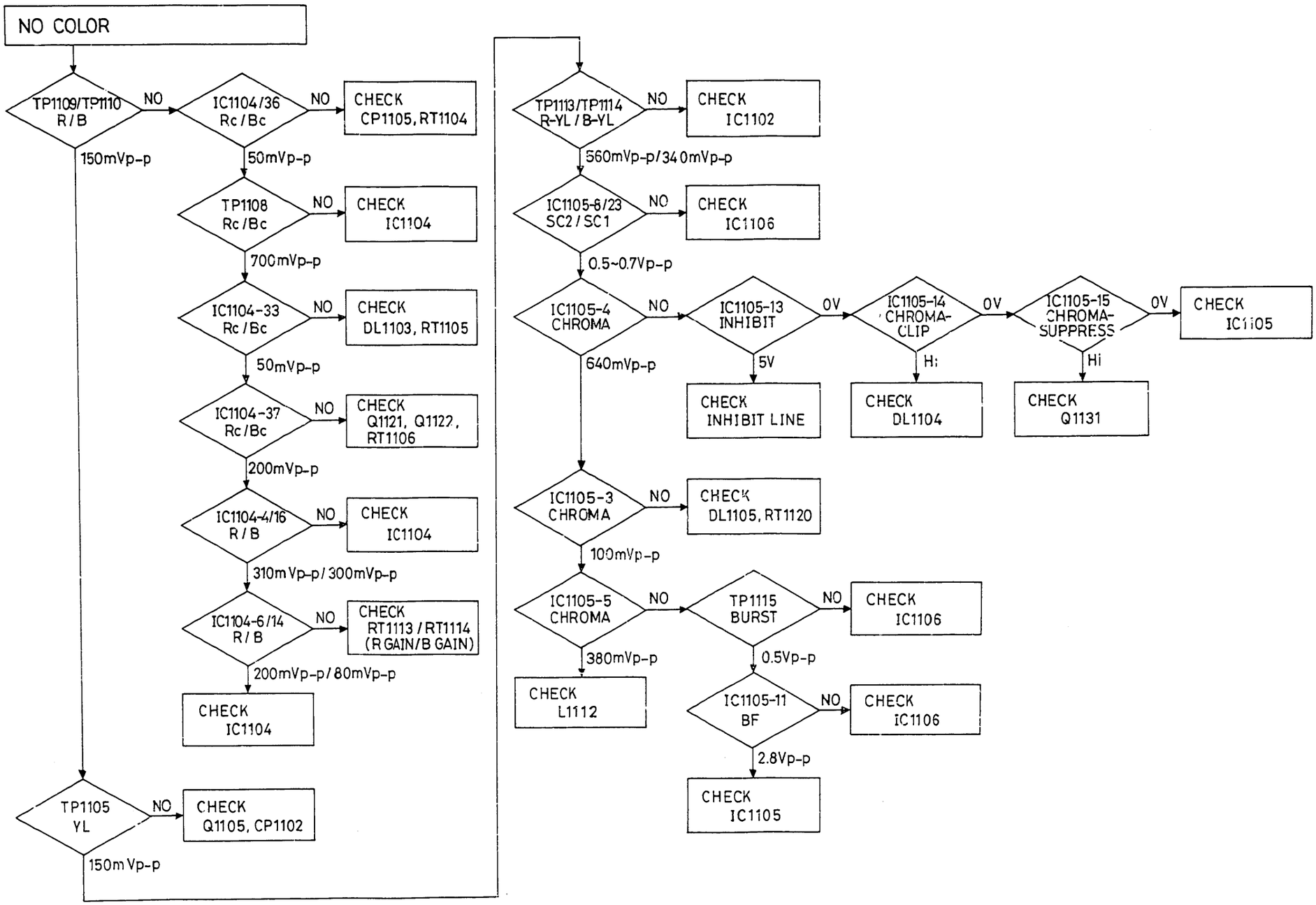



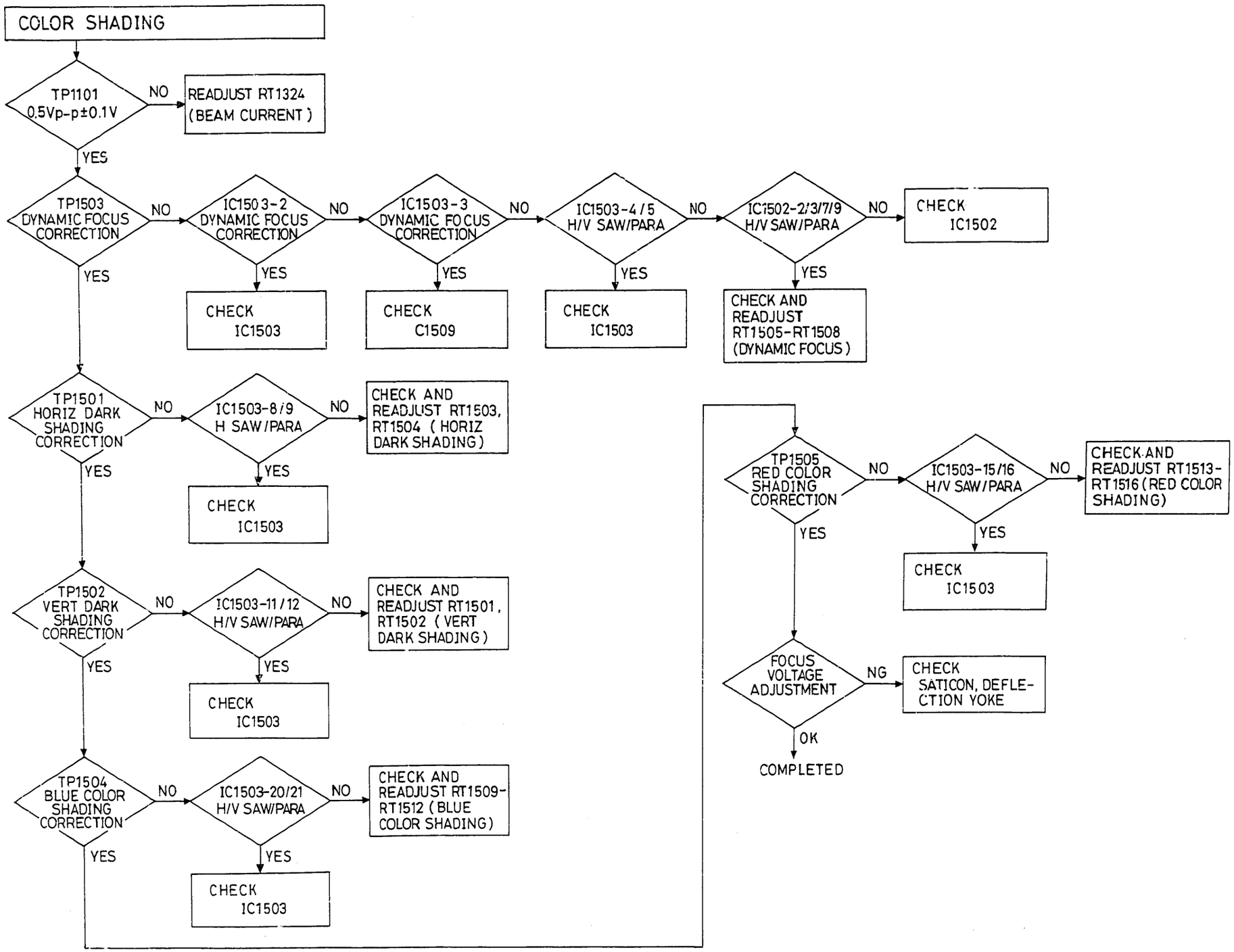

MOTOR DRIVE CIRCUIT

| MODE | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 |
|---|---|---|---|---|---|---|
| FAR | ON | OFF | OFF | OFF | ON | ON |
| NEAR | OFF | ON | ON | ON | OFF | OFF |

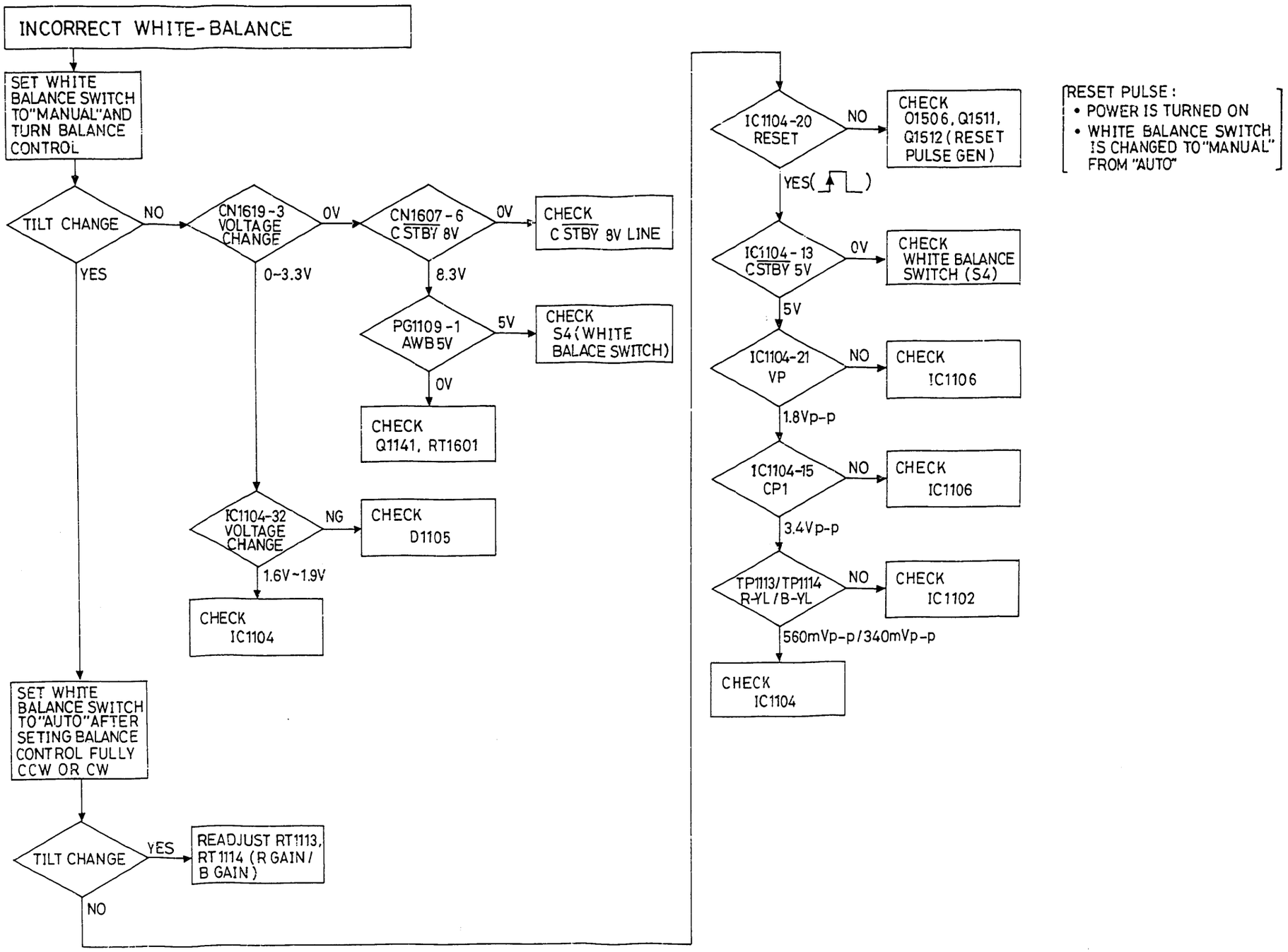
11. No color


NO COLOR
TP1109/TP1110 R/B
NO
IC1104/36 Rc/Bc
NO
CHECK CP1105, RT1104
150mVp-p
50mVp-p
TP1108 Rc/Bc
NO
CHECK IC1104
700mVp-p
IC1104-33 Rc/Bc
NO
CHECK DL1103, RT1105
50mVp-p
IC1104-37 Rc/Bc
NO
CHECK Q1121, Q1122, RT1106
200mVp-p
IC1104-4/16 R/B
NO
CHECK IC1104
310mVp-p/300mVp-p
IC1104-6/14 R/B
NO
CHECK RT1113/RT1114 (R GAIN/B GAIN)
200mVp-p/80mVp-p
CHECK IC1104
TP1105 YL
NO
CHECK Q1105, CP1102
150mVp-p
TP1113/TP1114 R-YL/B-YL
NO
CHECK IC1102
560mVp-p/340mVp-p
IC1105-8/23 SC2/SC1
NO
CHECK IC1106
0.5~0.7Vp-p
IC1105-4 CHROMA
NO
IC1105-13 INHIBIT
0V
IC1105-14 CHROMA-CLIP
0V
IC1105-15 CHROMA-SUPPRESS
0V
CHECK IC1105
640mVp-p
5V
Hi
Hi
CHECK INHIBIT LINE
CHECK DL1104
CHECK Q1131
IC1105-3 CHROMA
NO
CHECK DL1105, RT1120
100mVp-p
IC1105-5 CHROMA
NO
TP1115 BURST
NO
CHECK IC1106
380mVp-p
0.5Vp-p
CHECK L1112
IC1105-11 BF
NO
CHECK IC1106
2.8Vp-p
CHECK IC1105

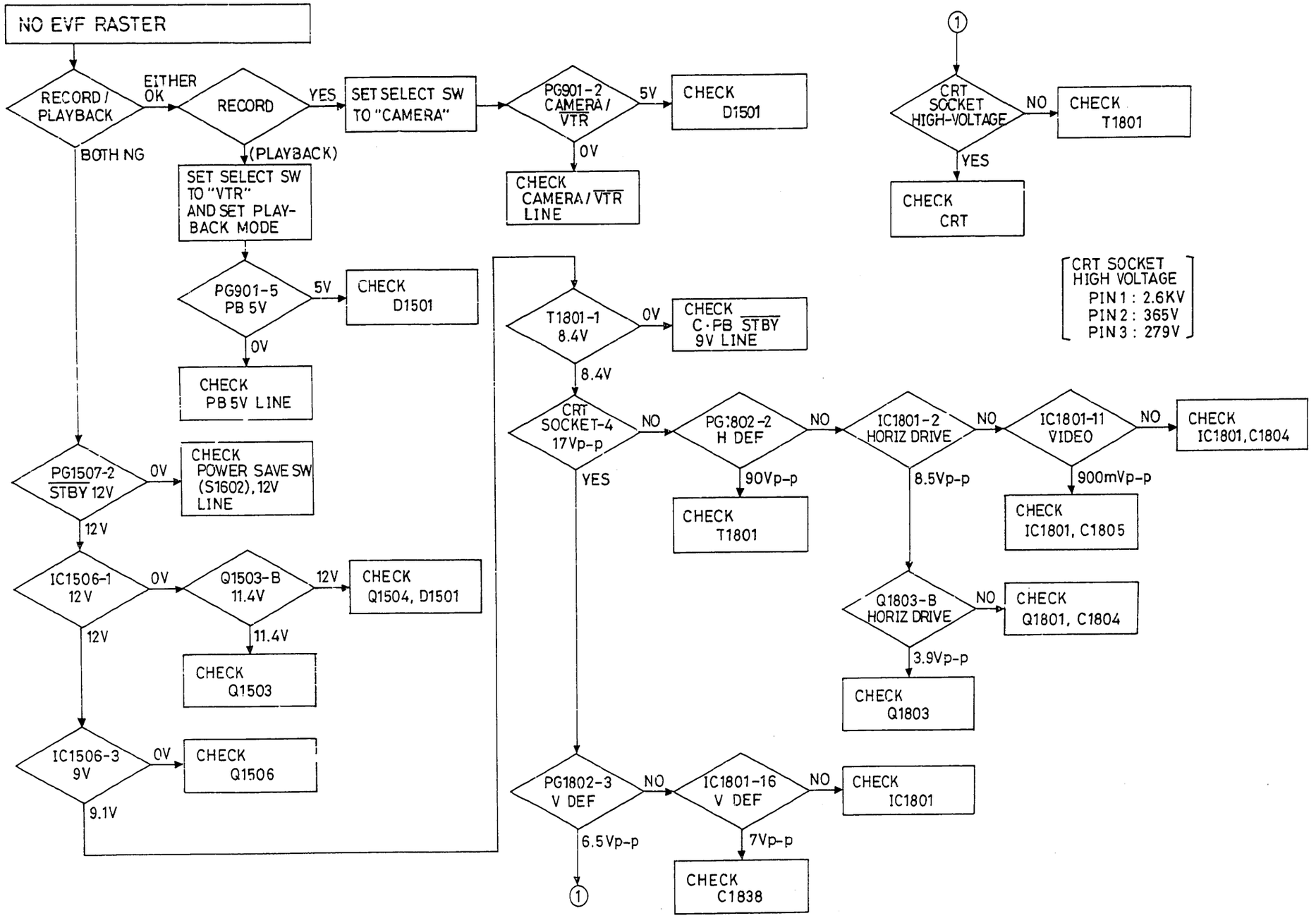
12. Color shading



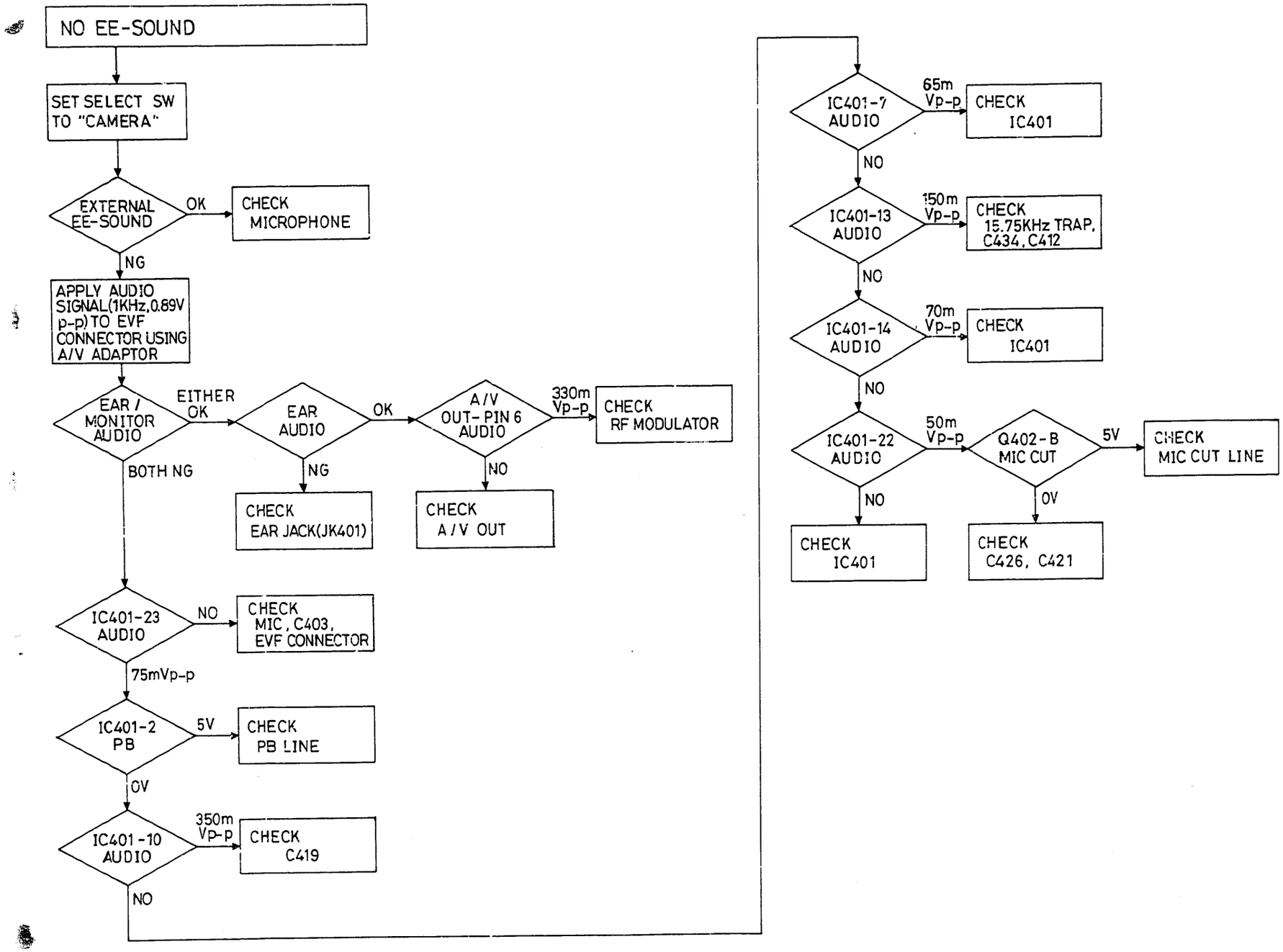
13. Incorrect white-balance



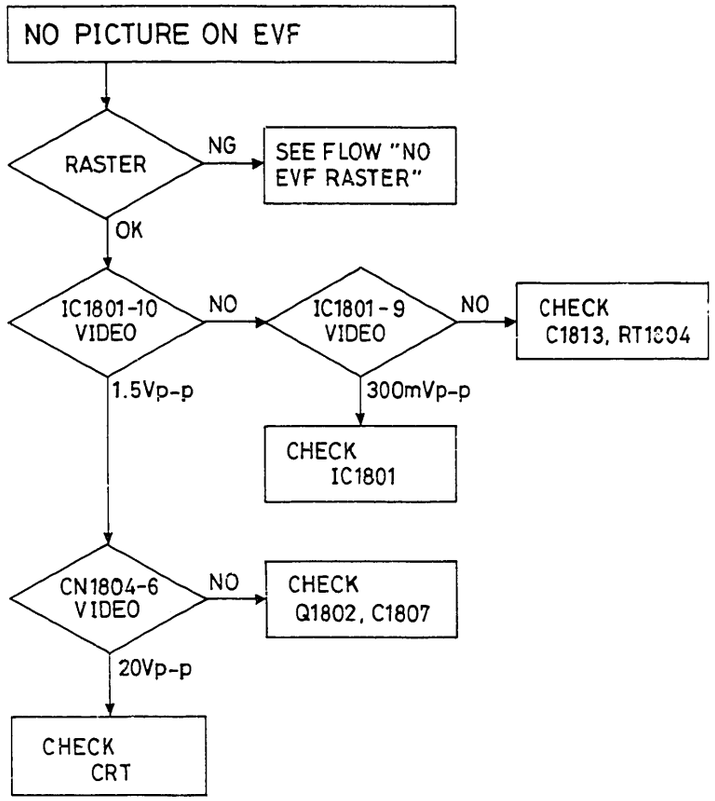
14. No EVF raster



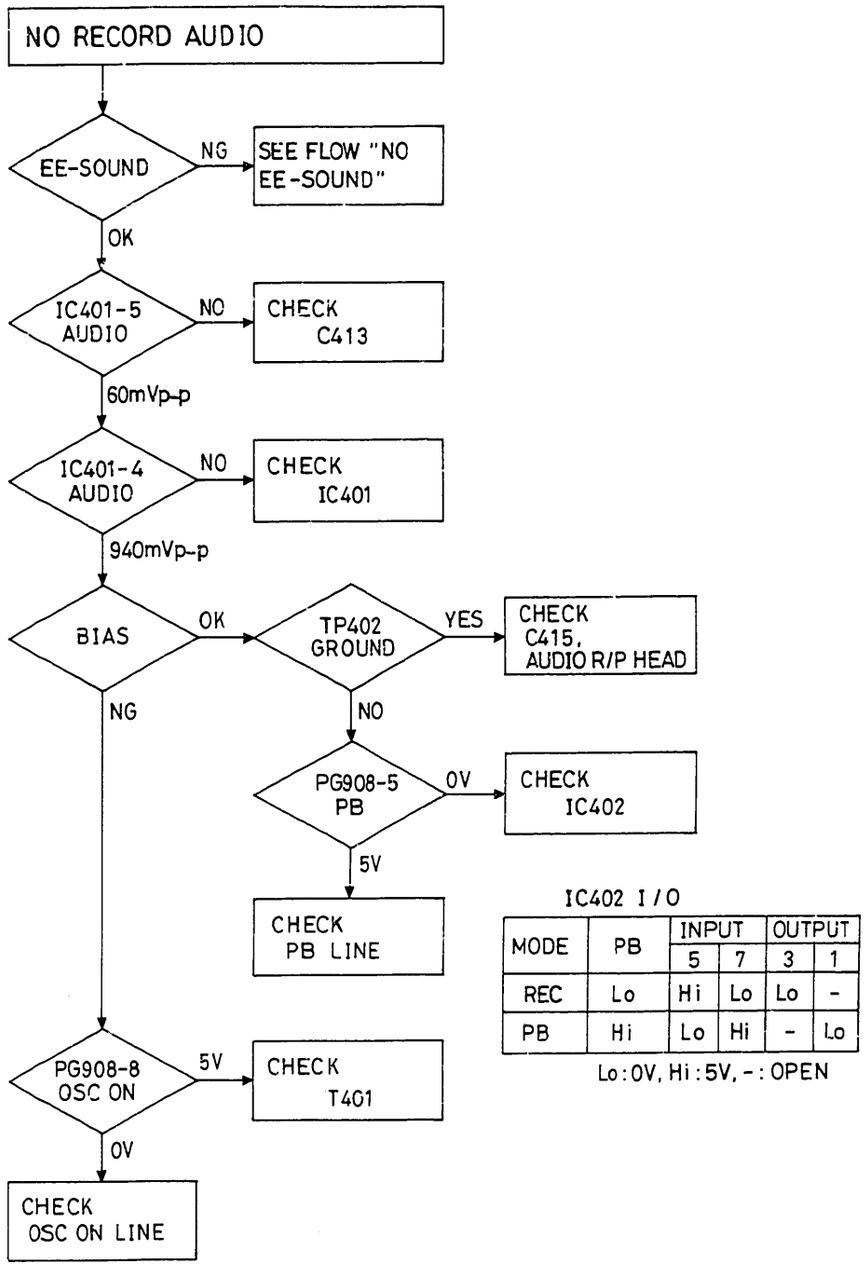
## 15. No EE-sound



16. No picture on EVF




17. No record audio

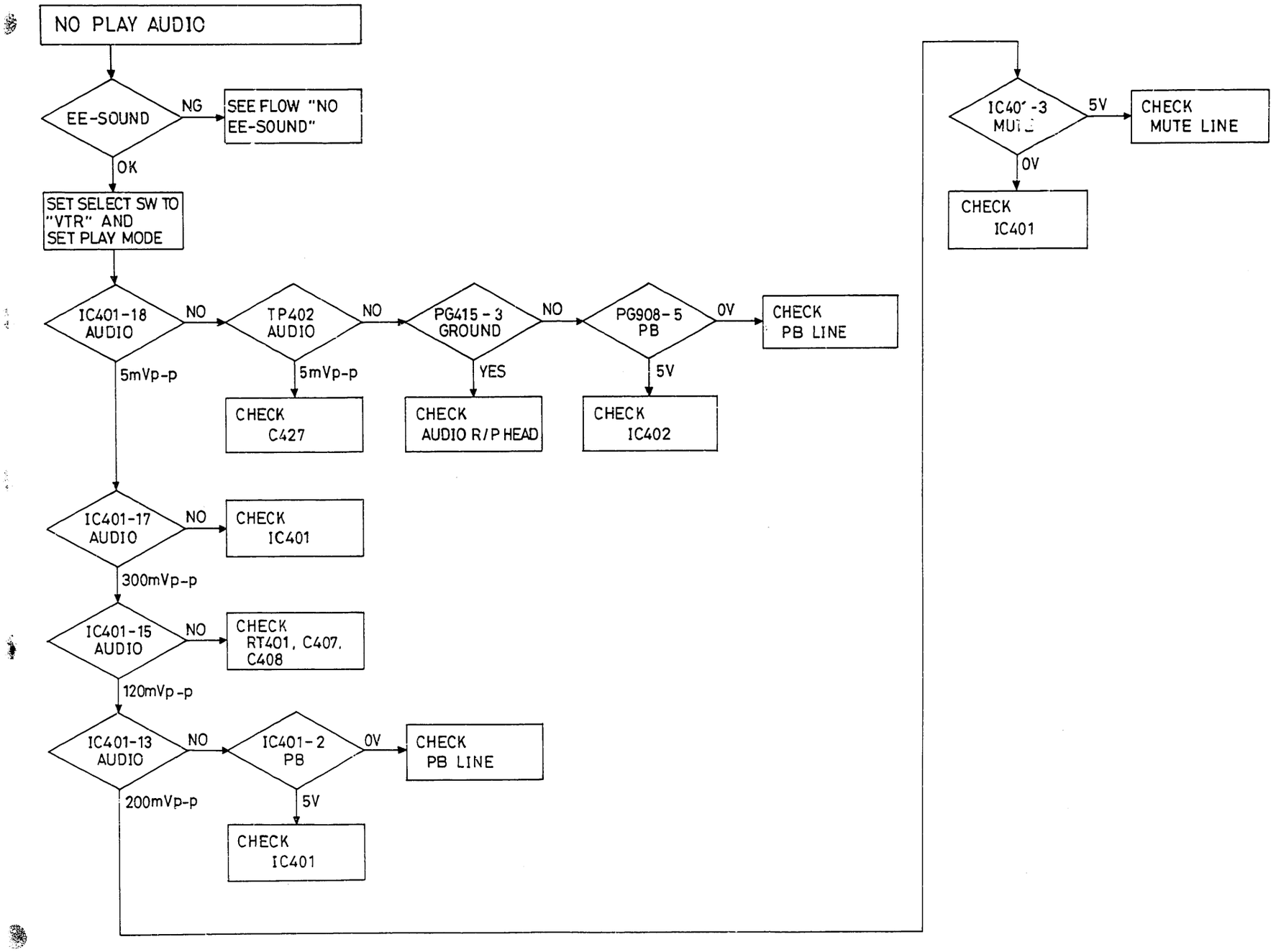



IC402 I/O

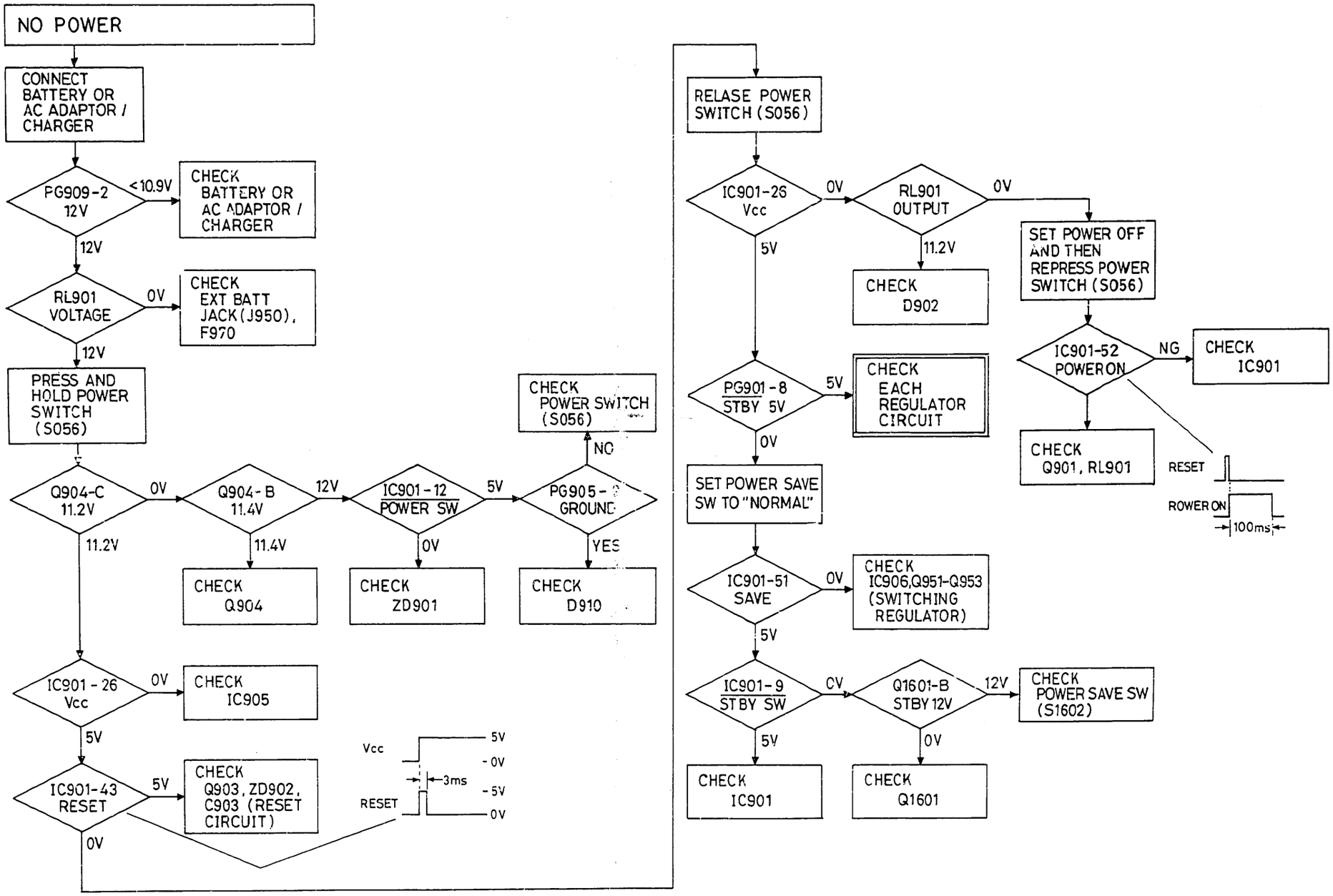
| MODE | PB | INPUT | | OUTPUT | |
|---|---|---|---|---|---|
| | | 5 | 7 | 3 | 1 |
| REC | Lo | Hi | Lo | Lo | - |
| PB | Hi | Lo | Hi | - | Lo |

Lo:0V, Hi:5V, -: OPEN

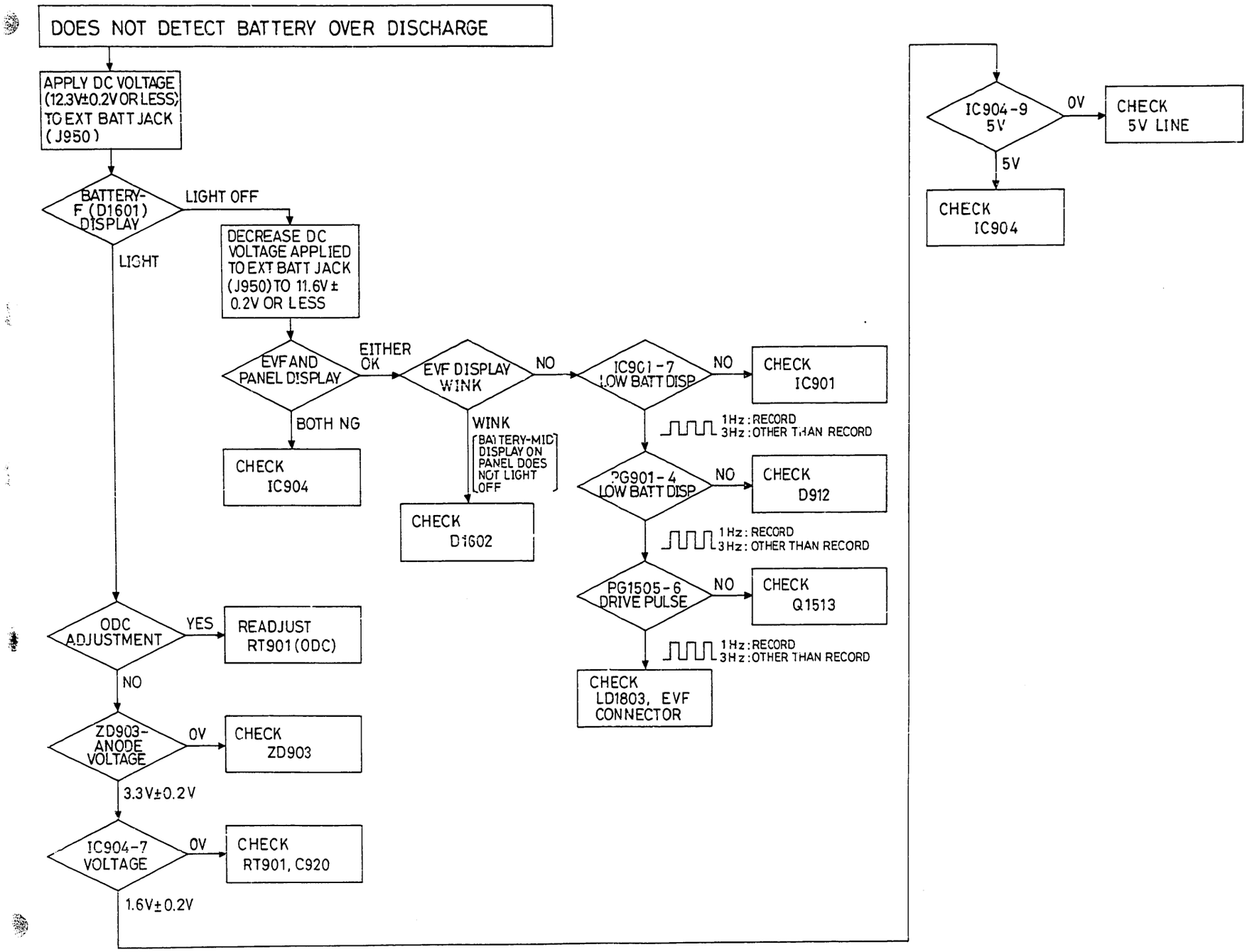
18. No play audio



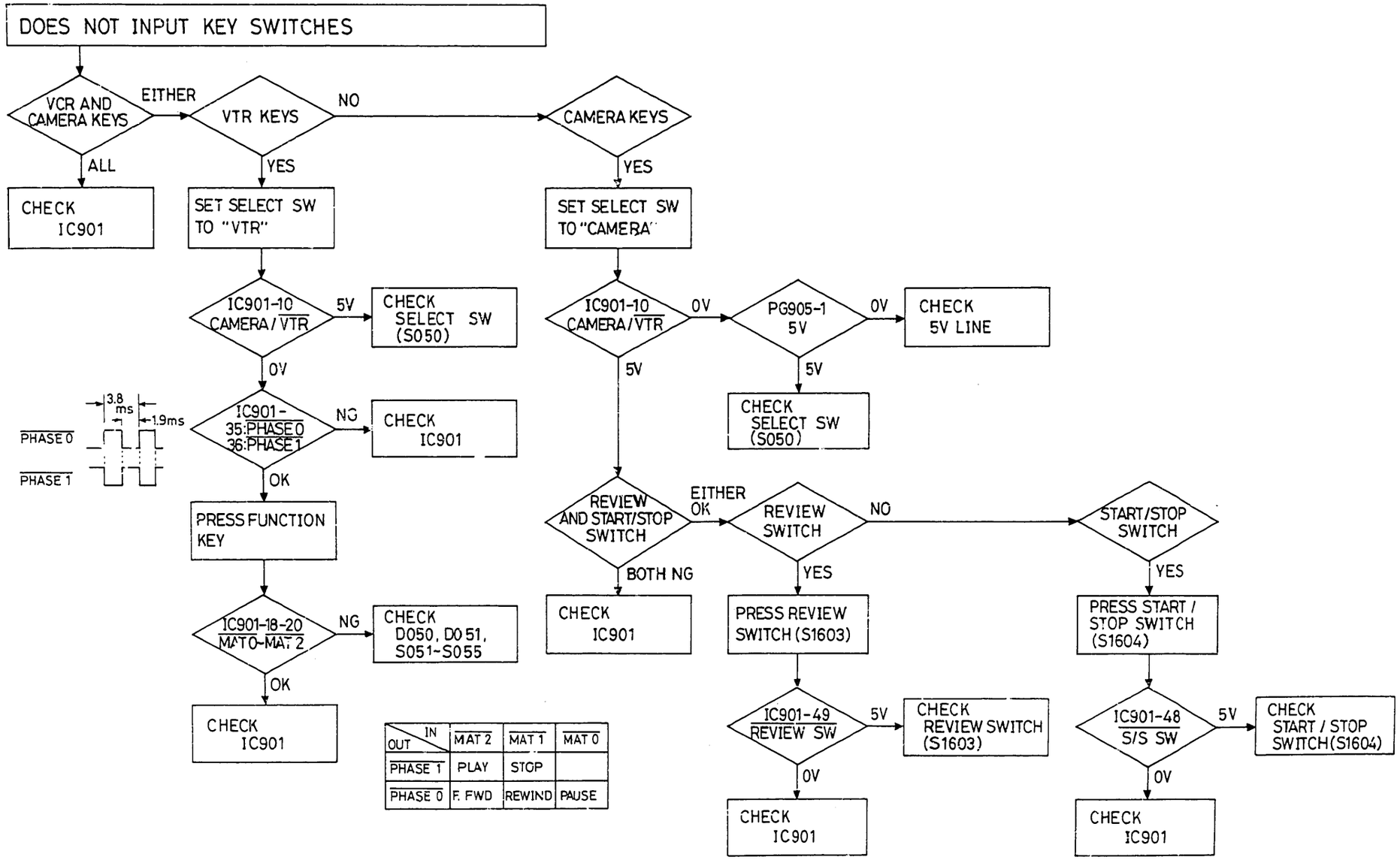
19. No power


NO POWER
CONNECT BATTERY OR AC ADAPTOR / CHARGER
PG909-2 12V
<10.9V
CHECK BATTERY OR AC ADAPTOR / CHARGER
12V
RL901 VOLTAGE
0V
CHECK EXT BATT JACK(J950), F970
12V
PRESS AND HOLD POWER SWITCH (S056)
Q904-C 11.2V
0V
Q904-B 11.4V
12V
IC901-12 POWER SW
5V
PG905-? GROUND
NO
CHECK POWER SWITCH (S056)
11.2V
11.4V
0V
YES
CHECK Q904
CHECK ZD901
CHECK D910
IC901-26 Vcc
0V
CHECK IC905
5V
IC901-43 RESET
5V
CHECK Q903, ZD902, C903 (RESET CIRCUIT)
0V
Vcc
5V
0V
3ms
-5V
RESET
0V
RELASE POWER SWITCH (S056)
IC901-26 Vcc
0V
RL901 OUTPUT
0V
5V
11.2V
CHECK D902
PG901-8 STBY 5V
5V
CHECK EACH REGULATOR CIRCUIT
0V
SET POWER SAVE SW TO "NORMAL"
IC901-51 SAVE
0V
CHECK IC906,Q951-Q953 (SWITCHING REGULATOR)
5V
IC901-9 STBY SW
0V
Q1601-B STBY 12V
12V
CHECK POWER SAVE SW (S1602)
5V
0V
CHECK IC901
CHECK Q1601
SET POWER OFF AND THEN REPRESS POWER SWITCH (S056)
IC901-52 POWERON
NG
CHECK IC901
CHECK Q901, RL901
RESET
ROWER ON
100ms

20. Does not detect battery over discharge

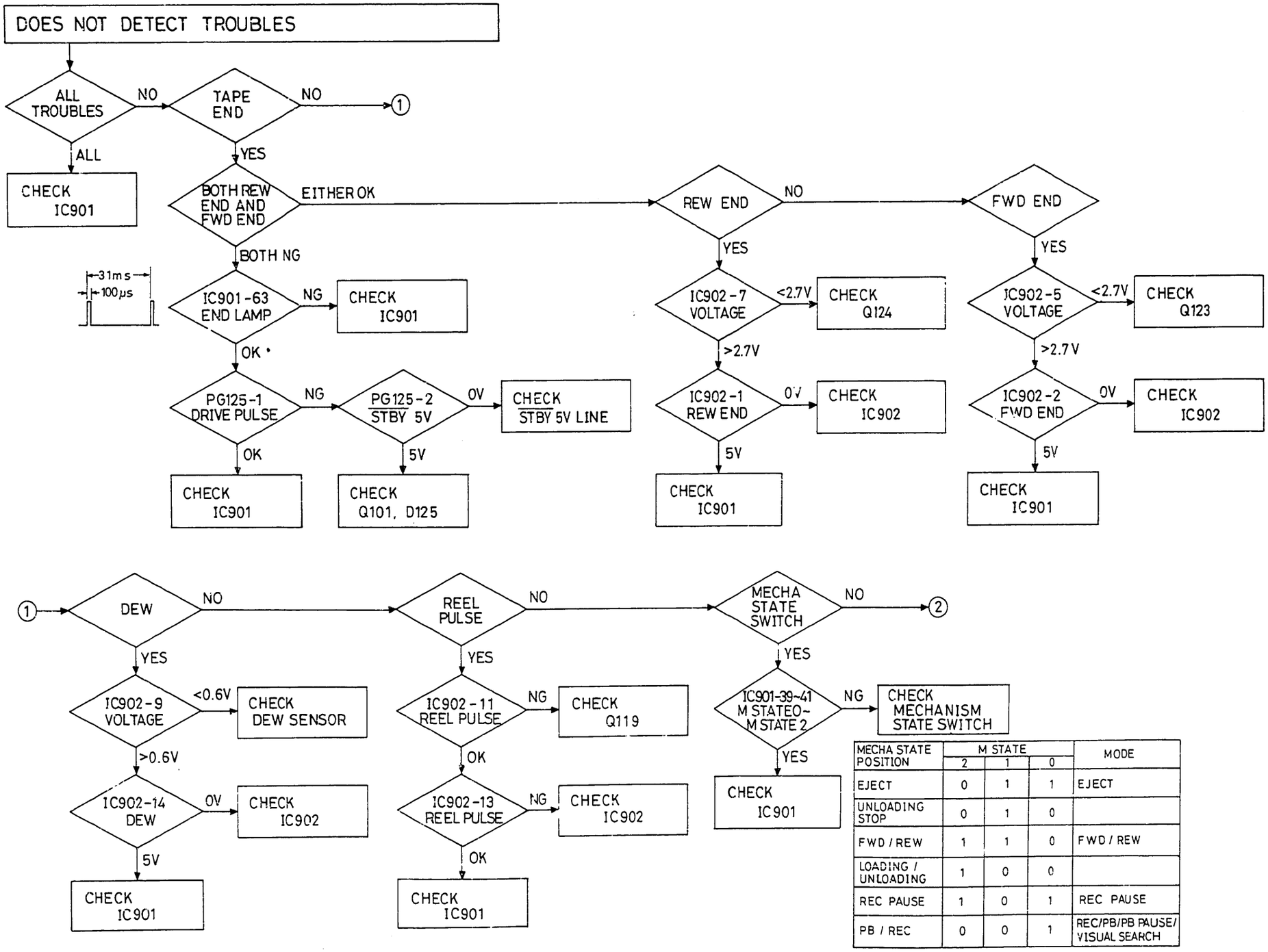


21. Does not input key switchs

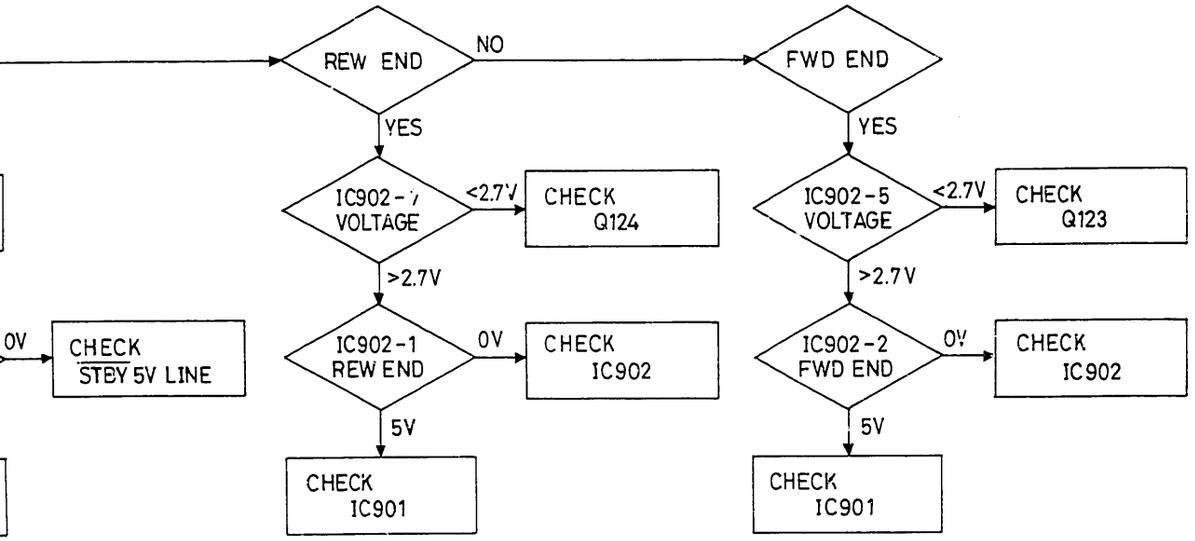


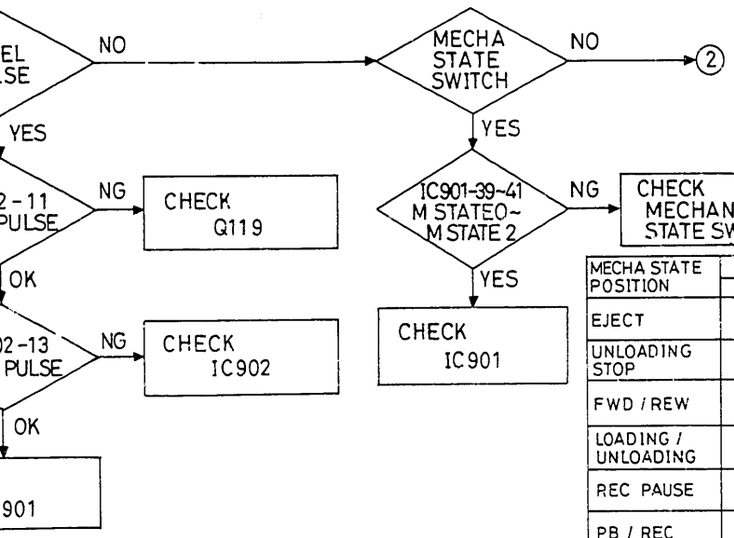

| IN / OUT | MAT 2 | MAT 1 | MAT 0 |
|---|---|---|---|
| PHASE 1 | PLAY | STOP | |
| PHASE 0 | F. FWD | REWIND | PAUSE |

## 22. Does not detect troubles



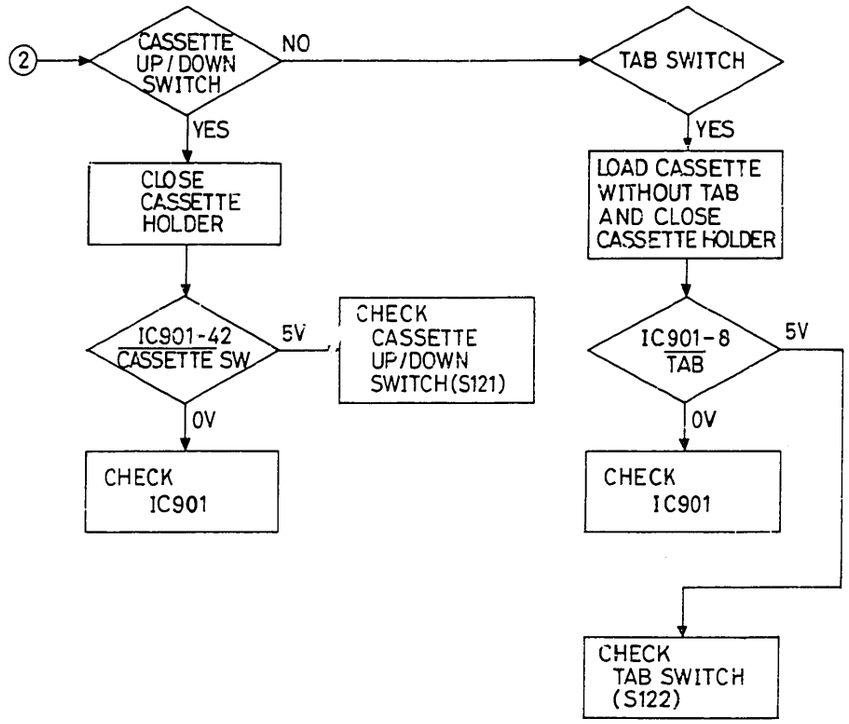

| MECHA STATE POSITION | M STATE 2 | M STATE 1 | M STATE 0 | MODE |
|---|---|---|---|---|
| EJECT | 0 | 1 | 1 | EJECT |
| UNLOADING STOP | 0 | 1 | 0 | |
| FWD / REW | 1 | 1 | 0 | FWD / REW |
| LOADING / UNLOADING | 1 | 0 | 0 | |
| REC PAUSE | 1 | 0 | 1 | REC PAUSE |
| PB / REC | 0 | 0 | 1 | REC/PB/PB PAUSE/ VISUAL SEARCH |



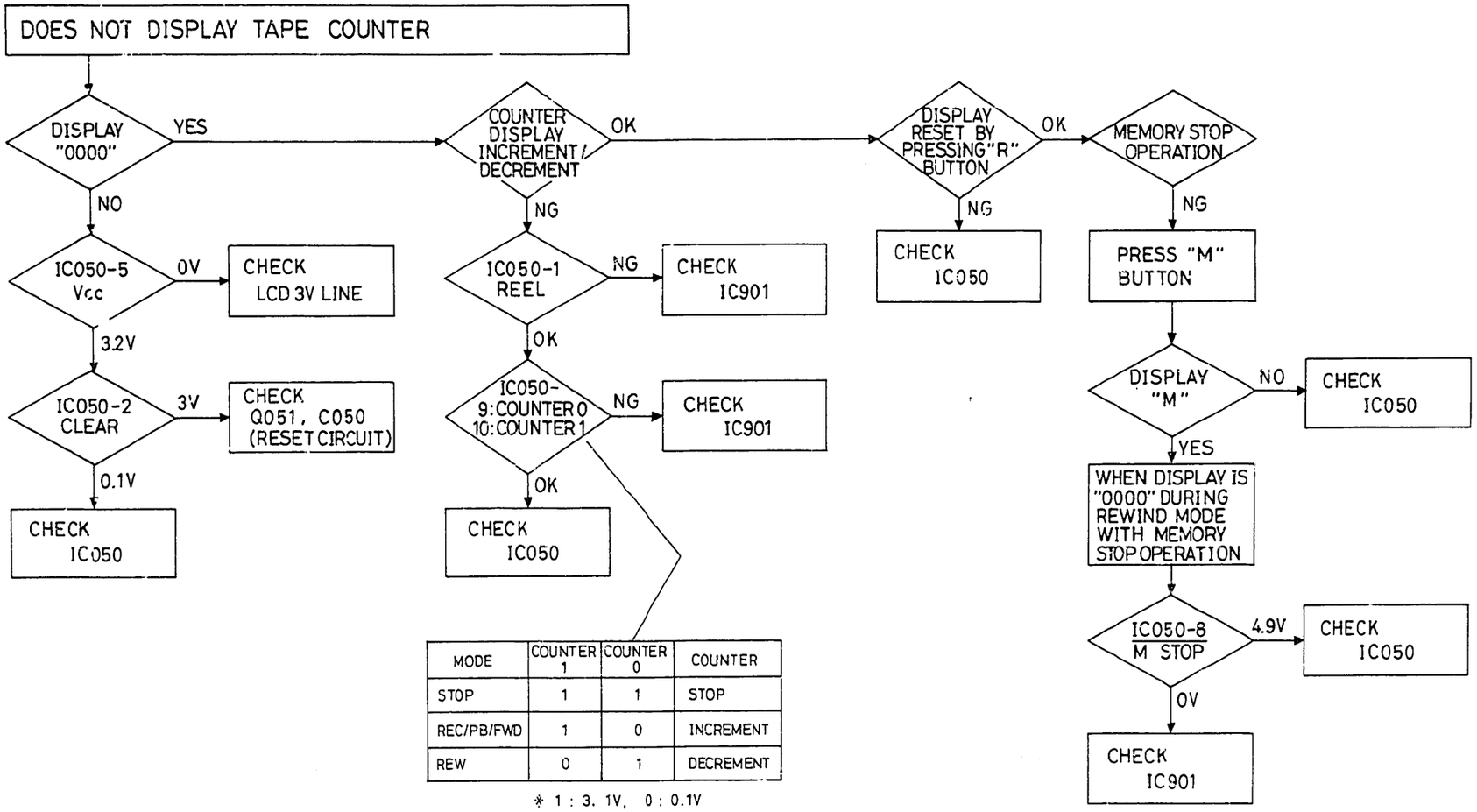




| MECHA STATE POSITION | M STATE 2 | 1 | 0 | MODE |
|---|---|---|---|---|
| EJECT | 0 | 1 | 1 | EJECT |
| UNLOADING STOP | 0 | 1 | 0 | |
| FWD / REW | 1 | 1 | 0 | FWD / REW |
| LOADING / UNLOADING | 1 | 0 | 0 | |
| REC PAUSE | 1 | 0 | 1 | REC PAUSE |
| PB / REC | 0 | 0 | 1 | REC/PB/PB PAUSE/ VISUAL SEARCH |





23. Does not display tape counter

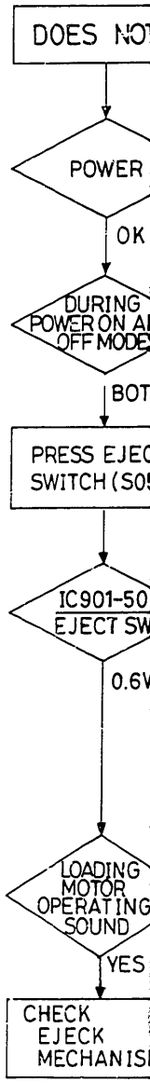


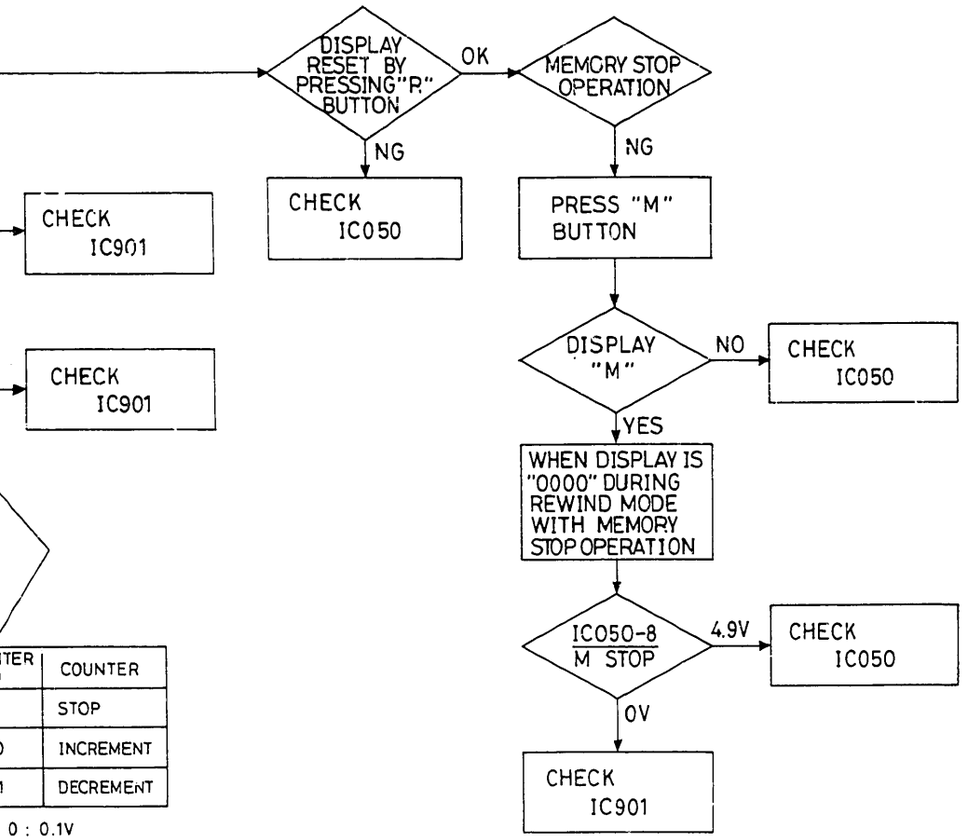

| MODE | COUNTER 1 | COUNTER 0 | COUNTER |
|---|---|---|---|
| STOP | 1 | 1 | STOP |
| REC/PB/FWD | 1 | 0 | INCREMENT |
| REW | 0 | 1 | DECREMENT |

※ 1 : 3. 1V, 0 : 0.1V

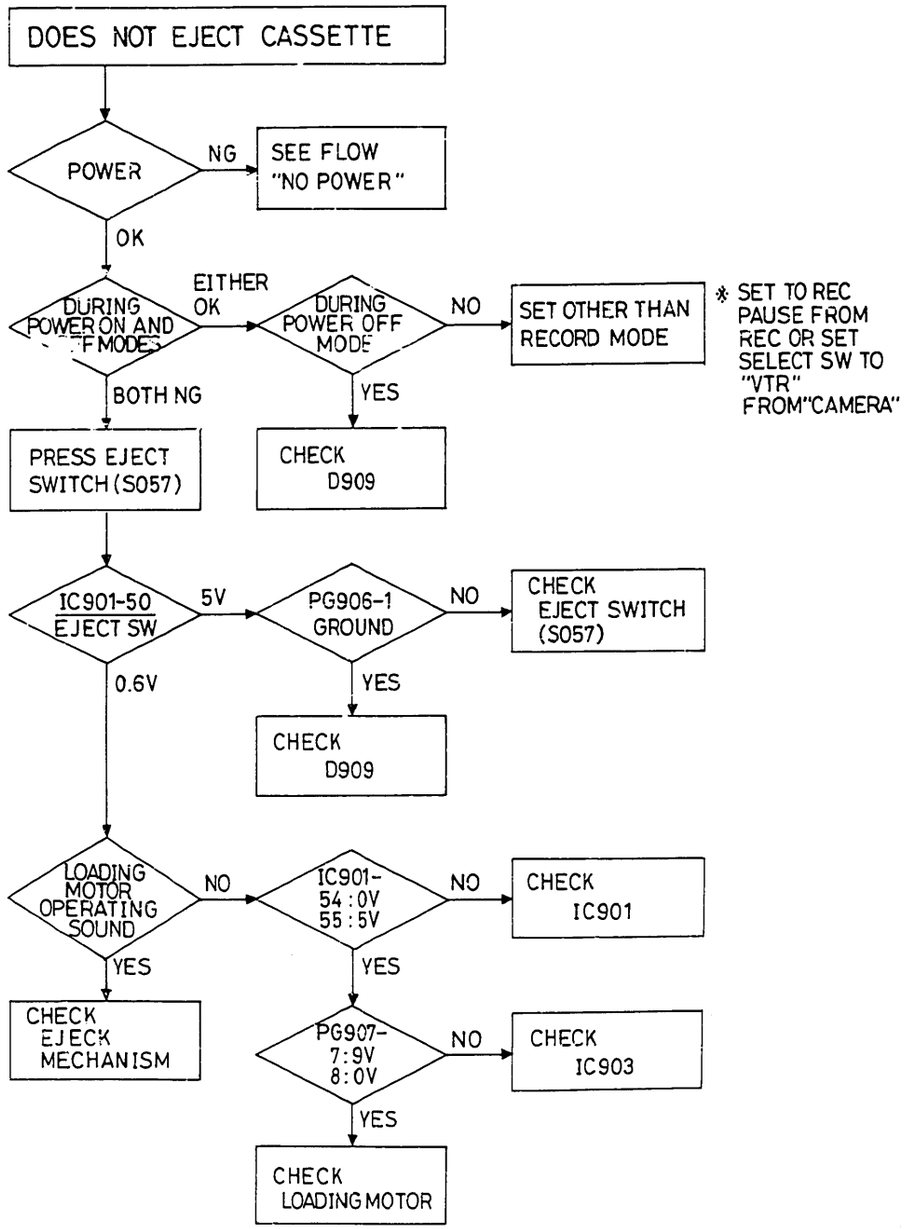


24. Does not ej

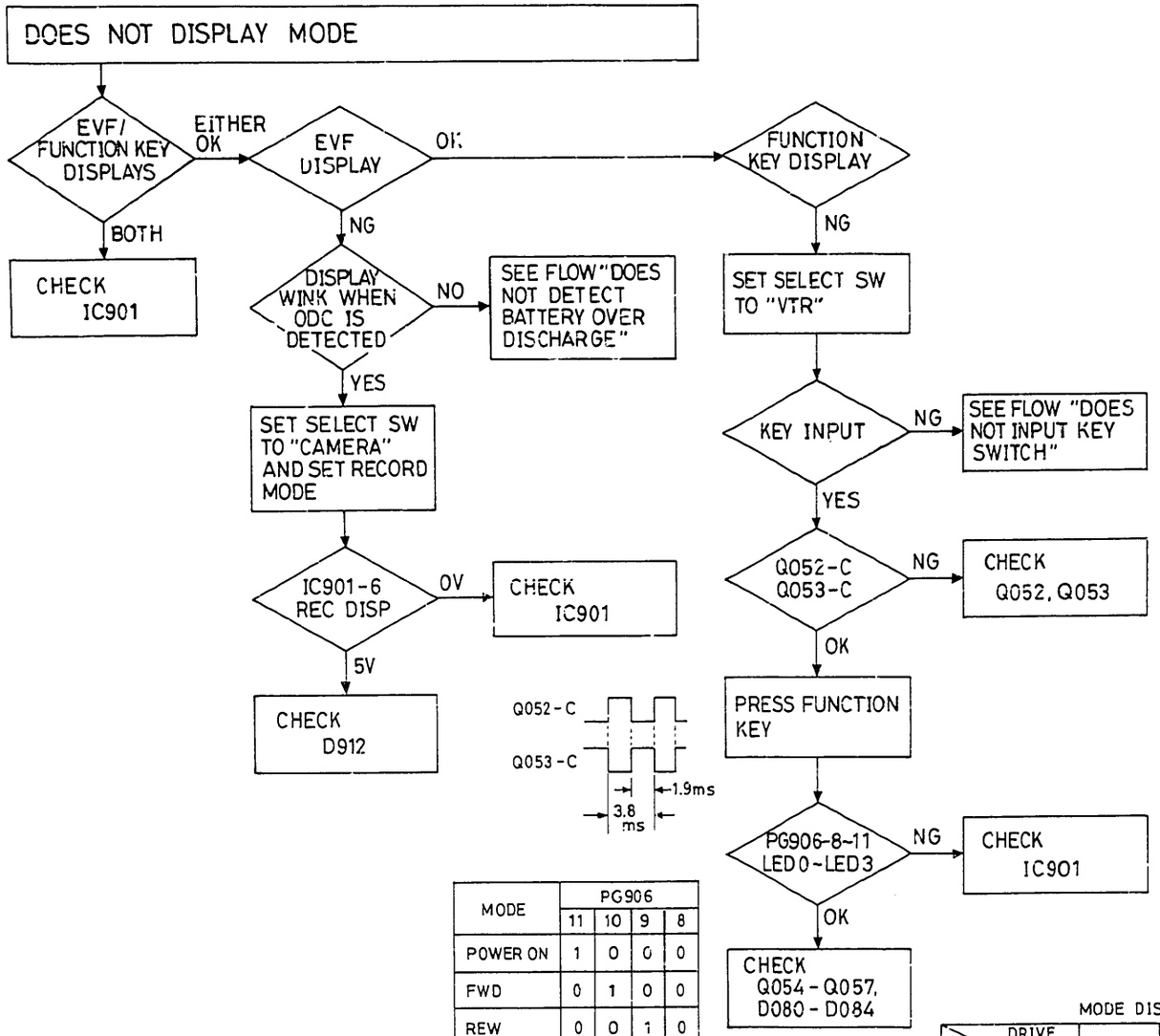





24. Does not eject cassette



## 25. Does not display mode



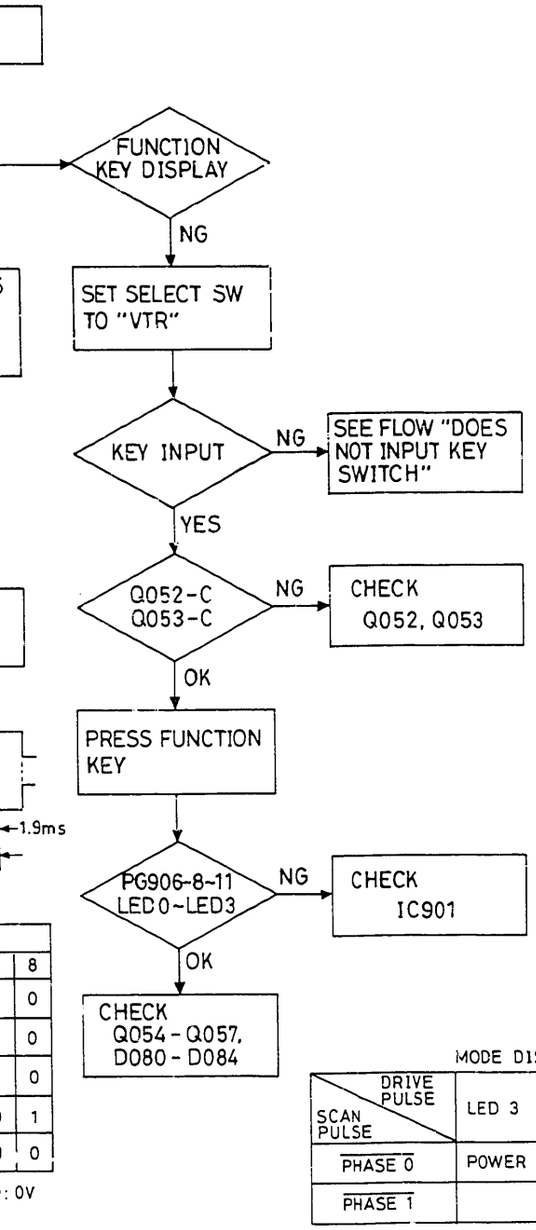

| MODE | PG906 | | | |
|---|---|---|---|---|
| | 11 | 10 | 9 | 8 |
| POWER ON | 1 | 0 | 0 | 0 |
| FWD | 0 | 1 | 0 | 0 |
| REW | 0 | 0 | 1 | 0 |
| PAUSE | 0 | 0 | 0 | 1 |
| PB | 0 | 1 | 0 | 0 |

※ 1 : 5Vp-p, 0 : 0V

MODE DISPLAY

| DRIVE PULSE / SCAN PULSE | LED 3 | LED 2 | LED 1 | LED 0 |
|---|---|---|---|---|
| $\overline{\text{PHASE 0}}$ | POWER | F. FWD | REWIND | PAUSE |
| $\overline{\text{PHASE 1}}$ | | PLAY | | |

## 26. Stripe

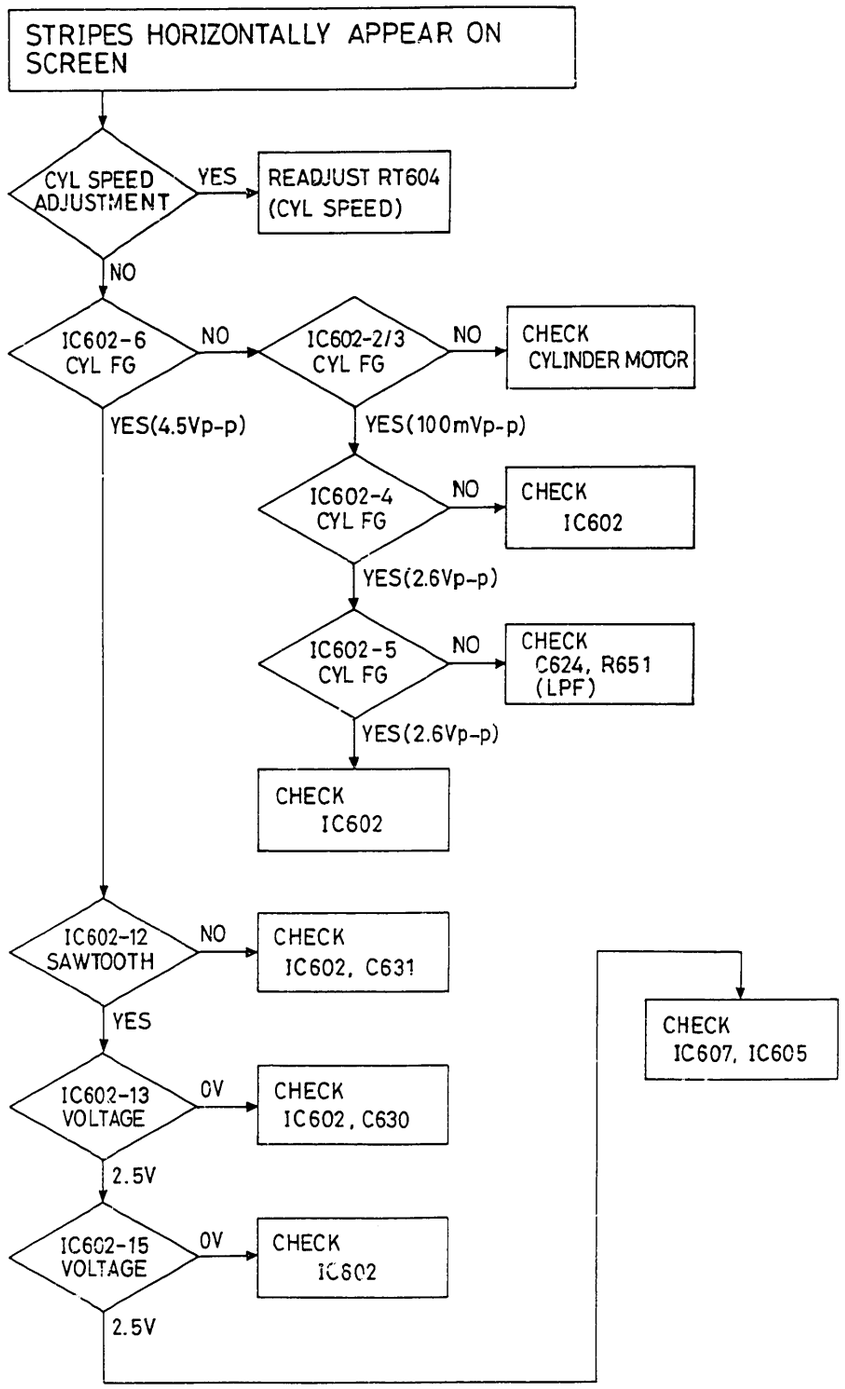



MODE DISPLAY

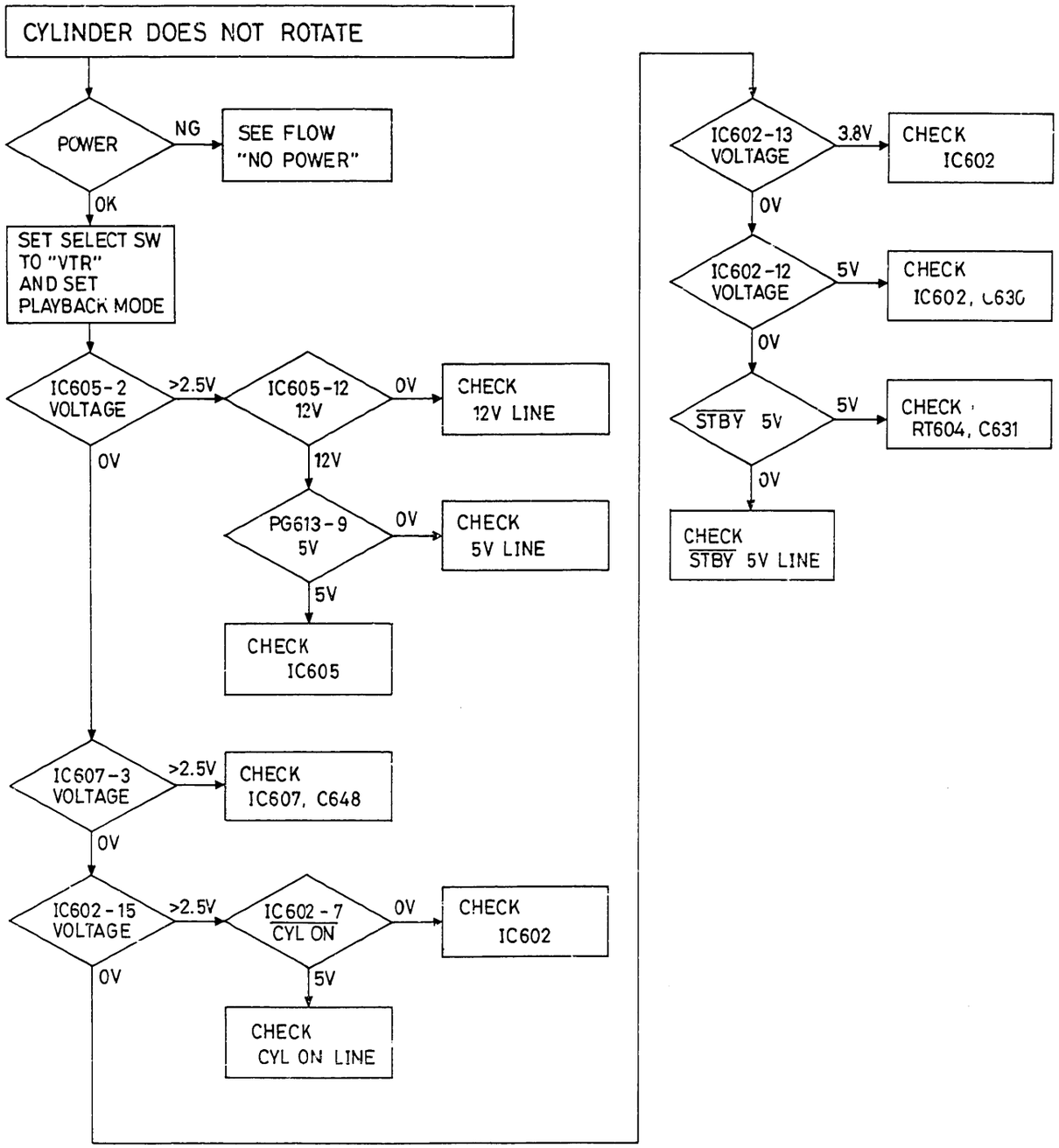
| DRIVE PULSE / SCAN PULSE | LED 3 | LED 2 | LED 1 | LED 0 |
|---|---|---|---|---|
| $\overline{\text{PHASE 0}}$ | POWER | F. FWD | REWIND | PAUSE |
| $\overline{\text{PHASE 1}}$ | | PLAY | | |



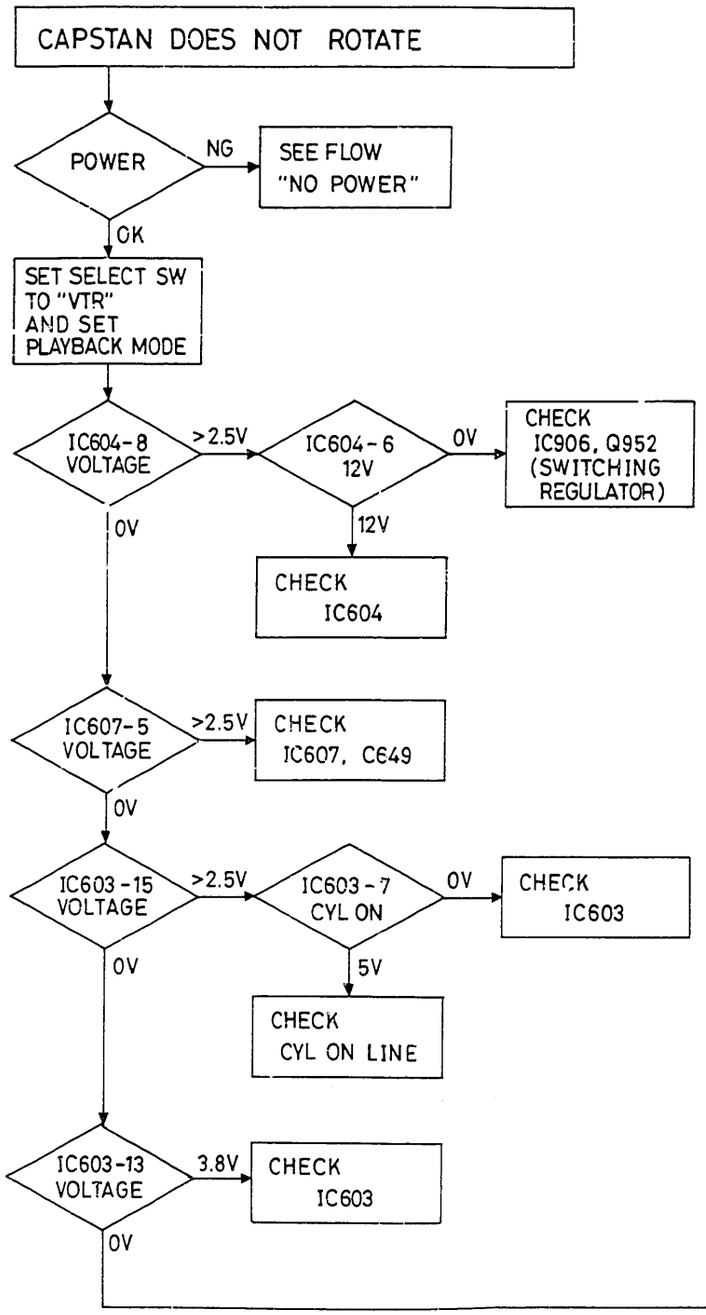
26. Stripes horizontally appear on screen

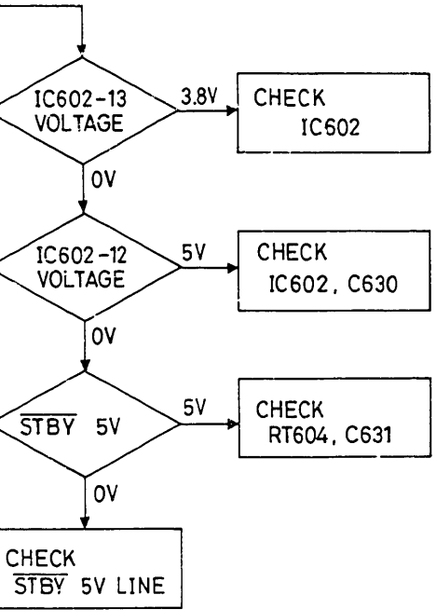


27. Cylinder does not rotate

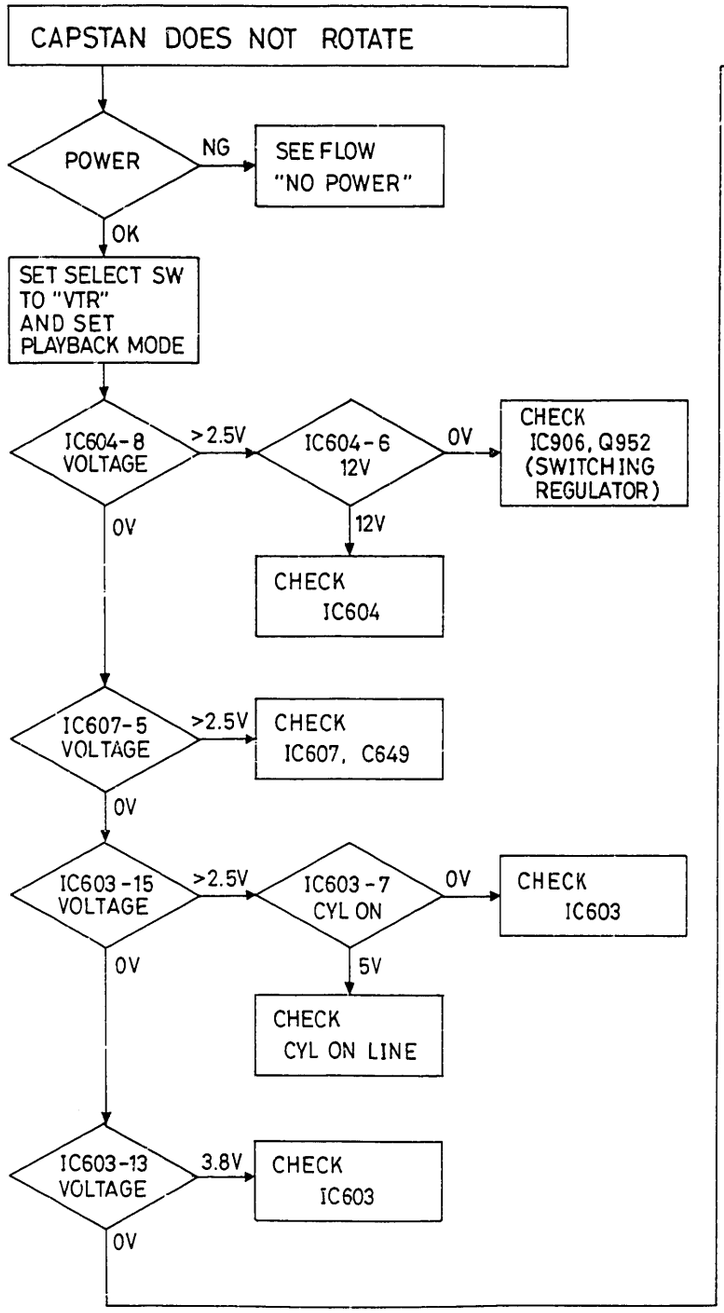



28. Capstan does not rotate

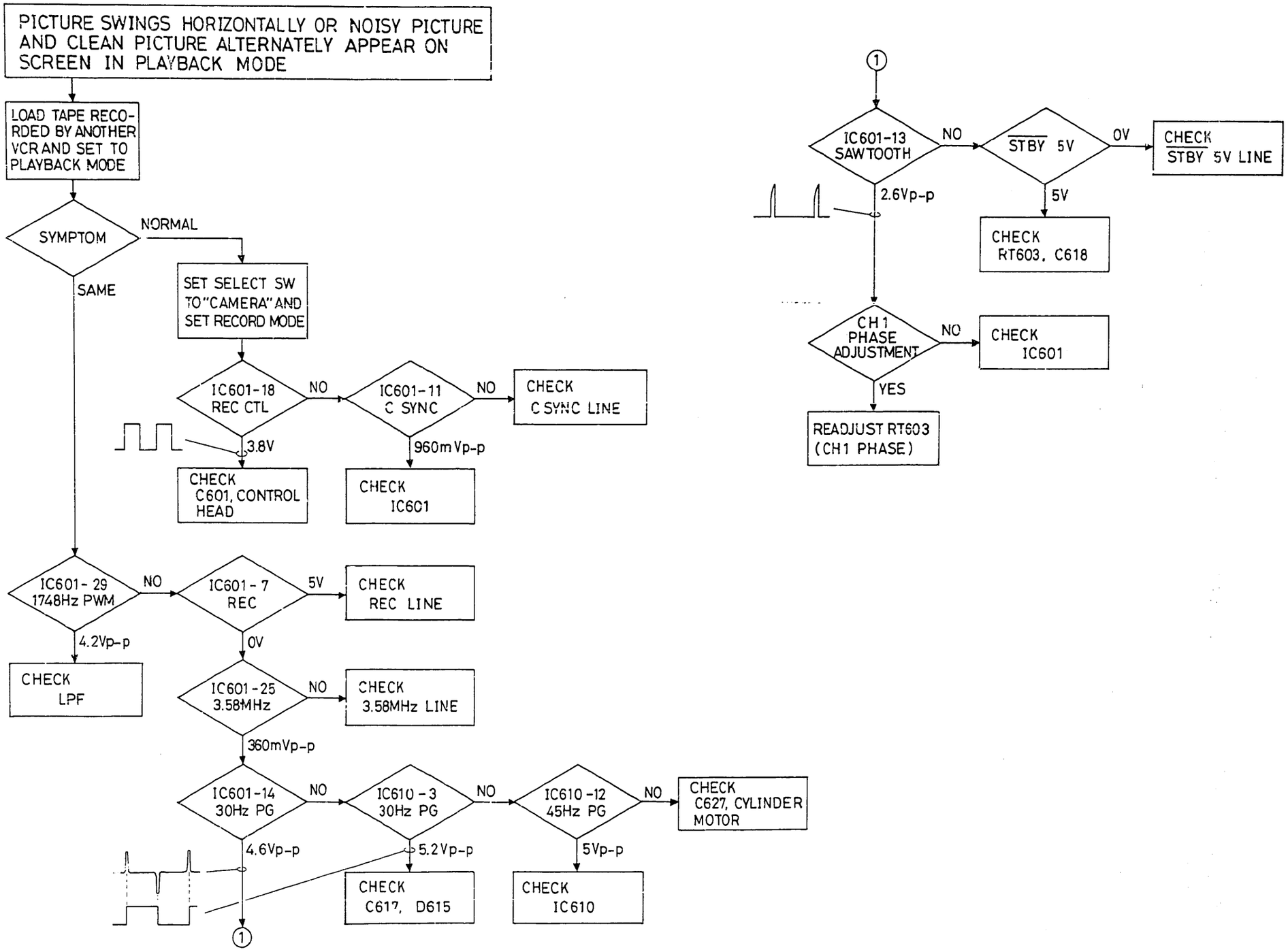




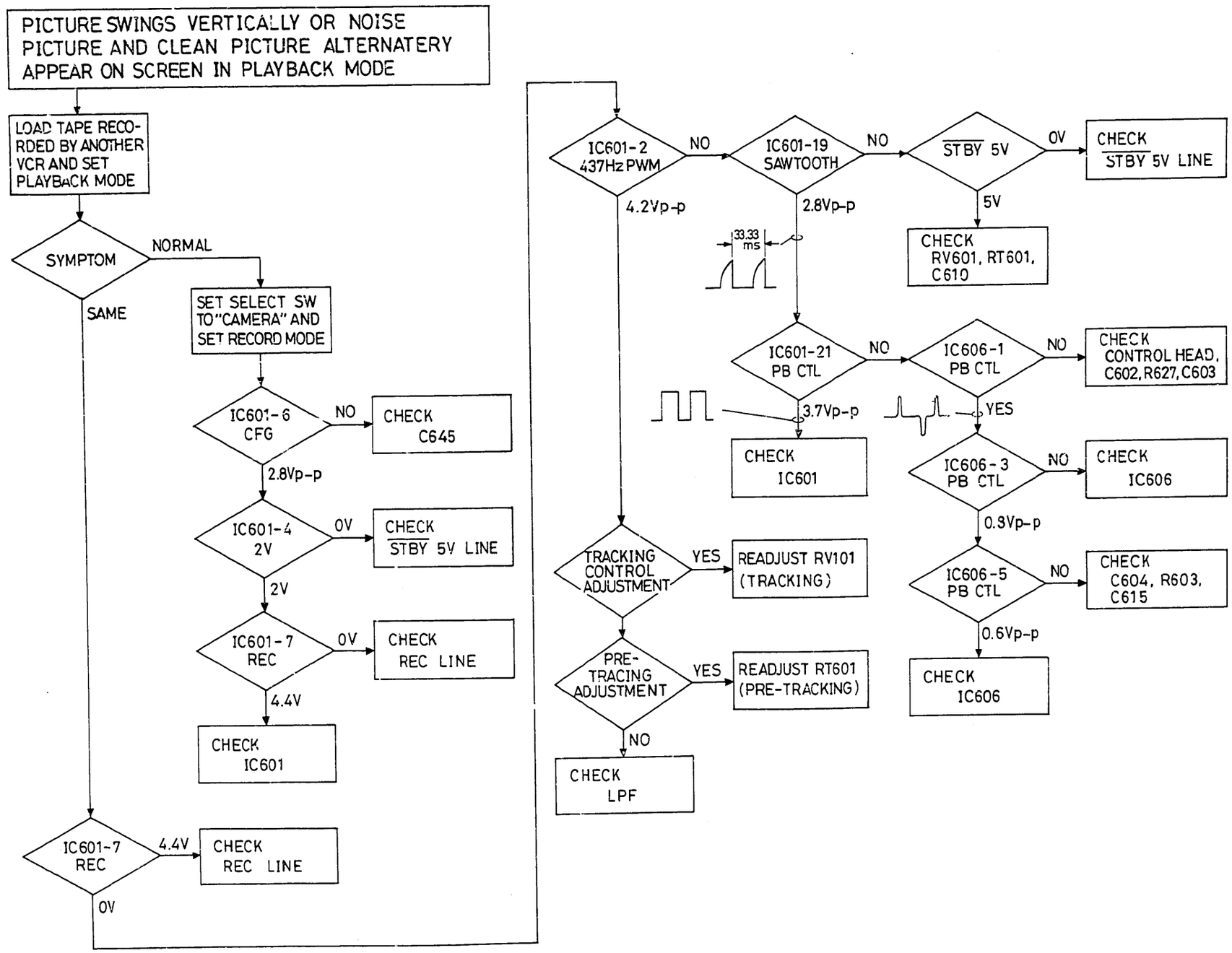

28. Capstan does not rotate



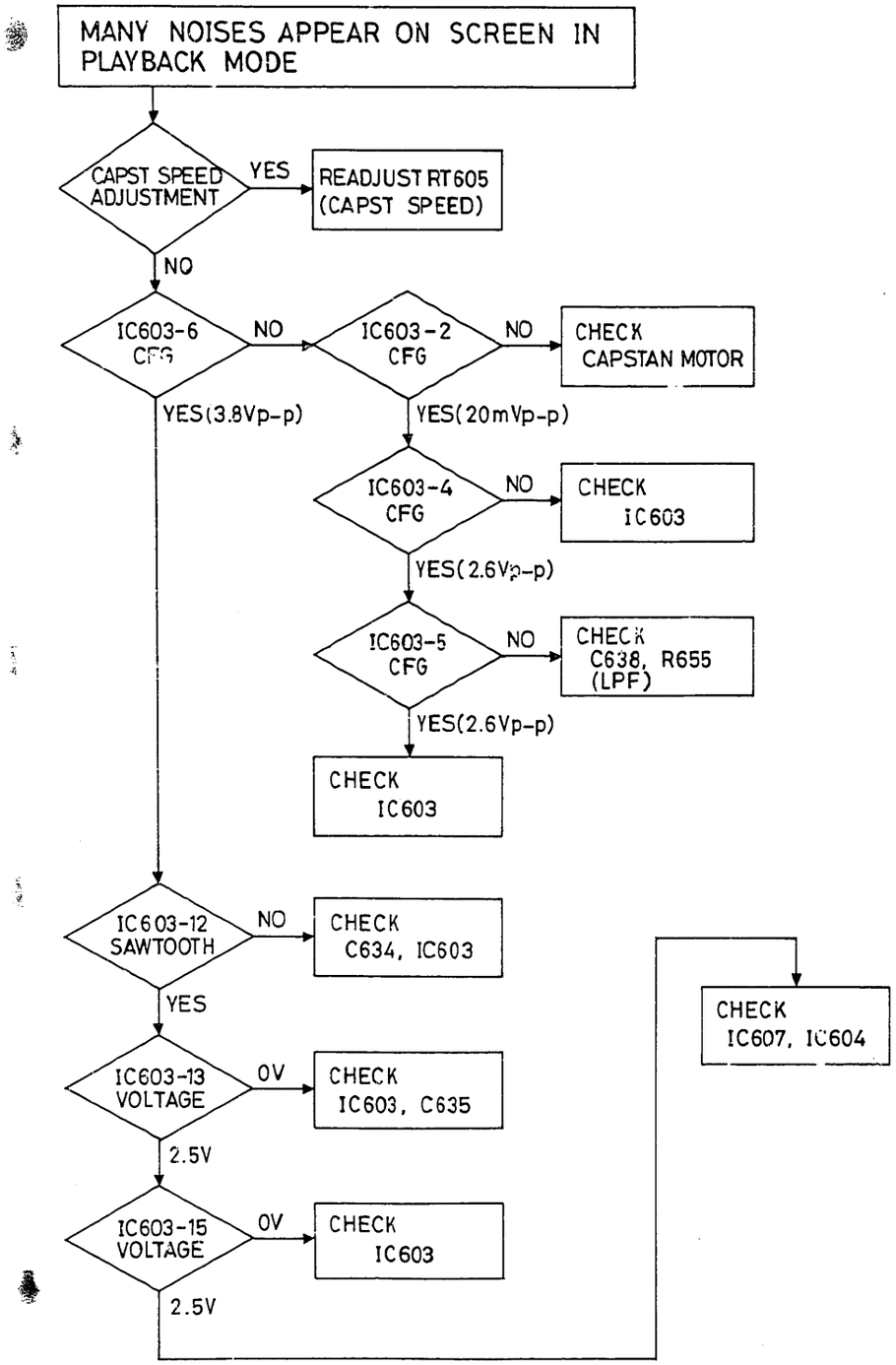
29. Picture swings horizontally or noise picture and clean picture alternately appear on screen in playback mode



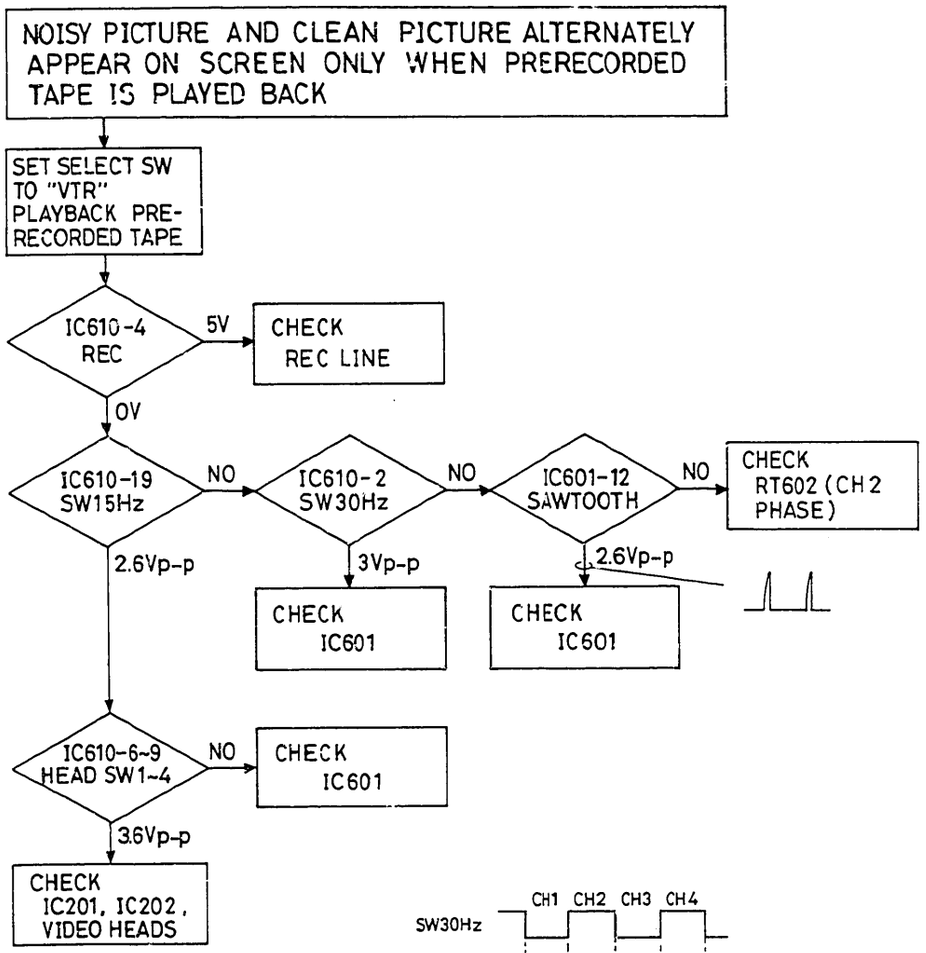
30. Picture swings vertically or noise picture and clean picture alternately appear on screen in playback mode

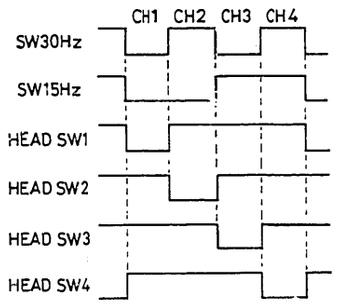


31. Many noise appear on screen in playback mode



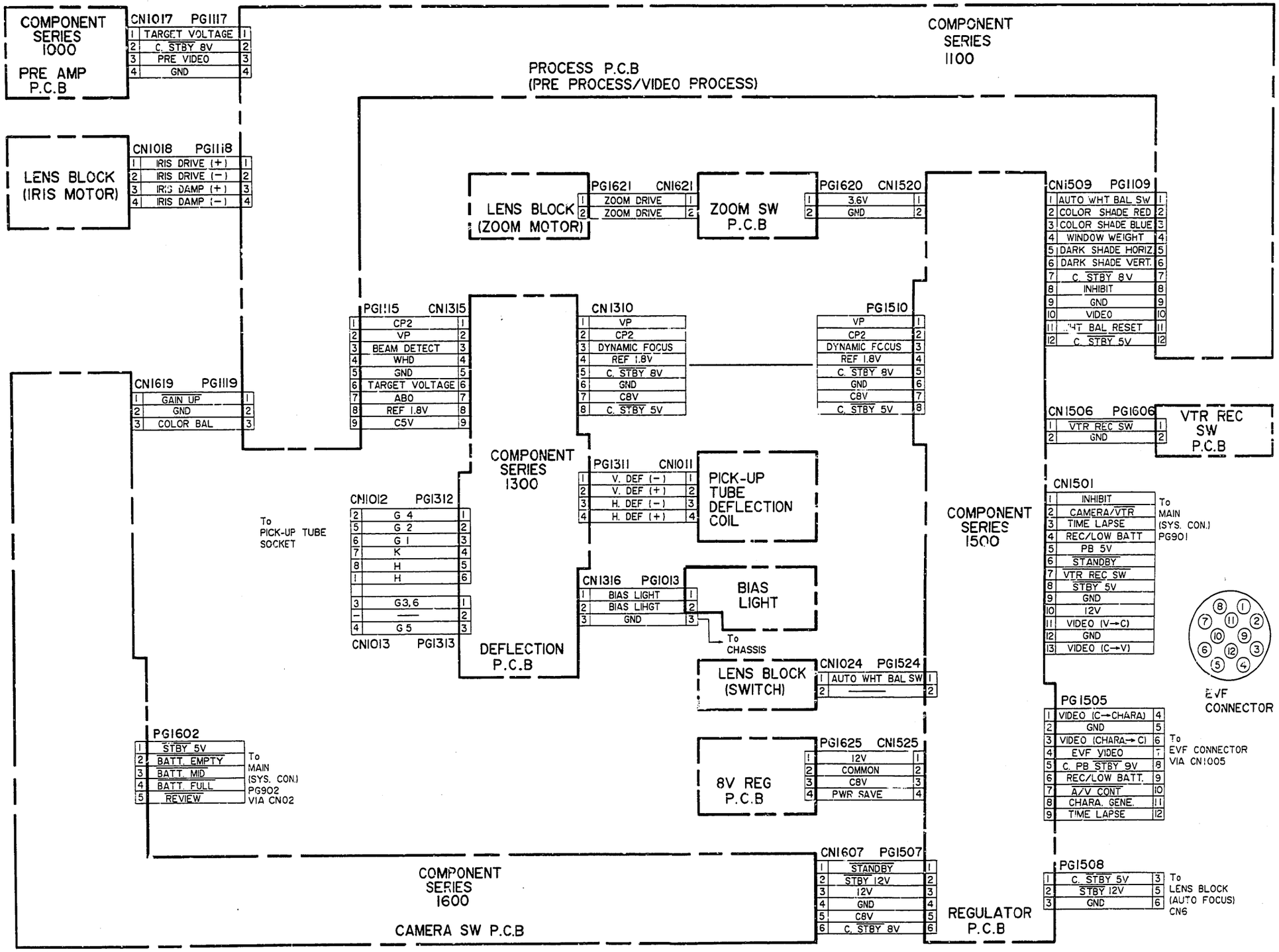
32. Noisy picture and clean picture alternately appear on screen only when prerecorded tape is played back



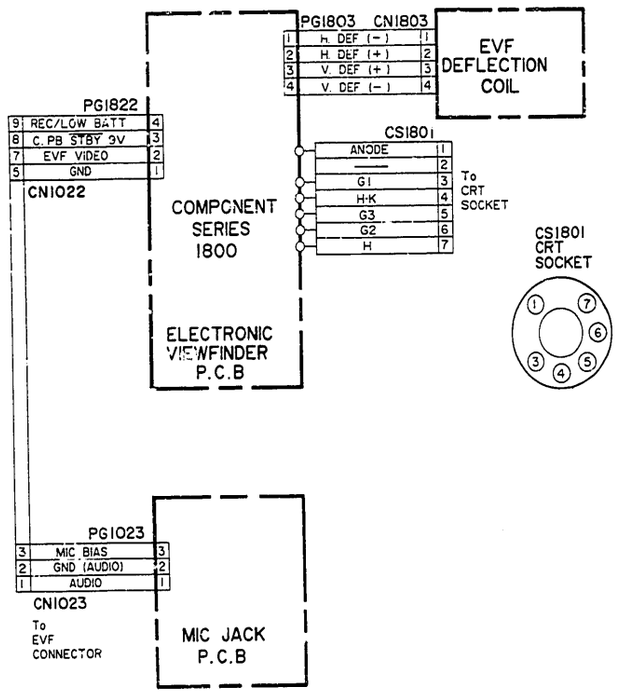



## BLOCK DIAGRAMS

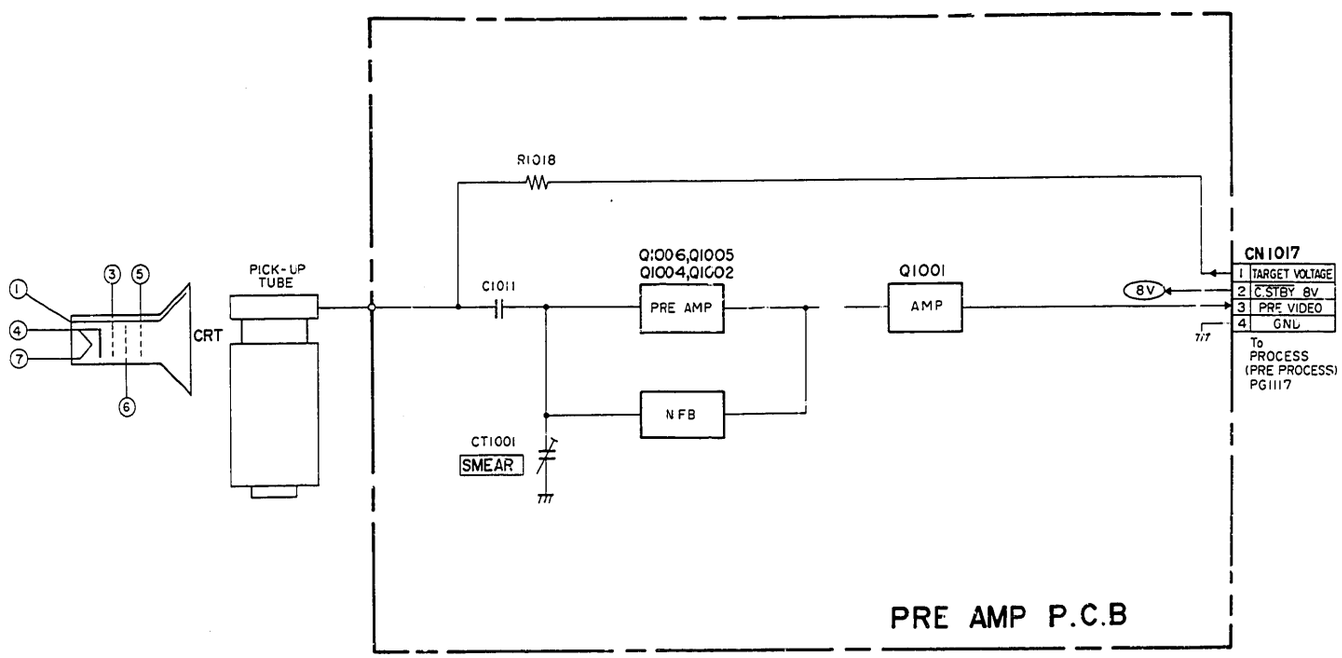
• CIRCUIT BOARD CONNECTION DIAGRAM (CAMERA)



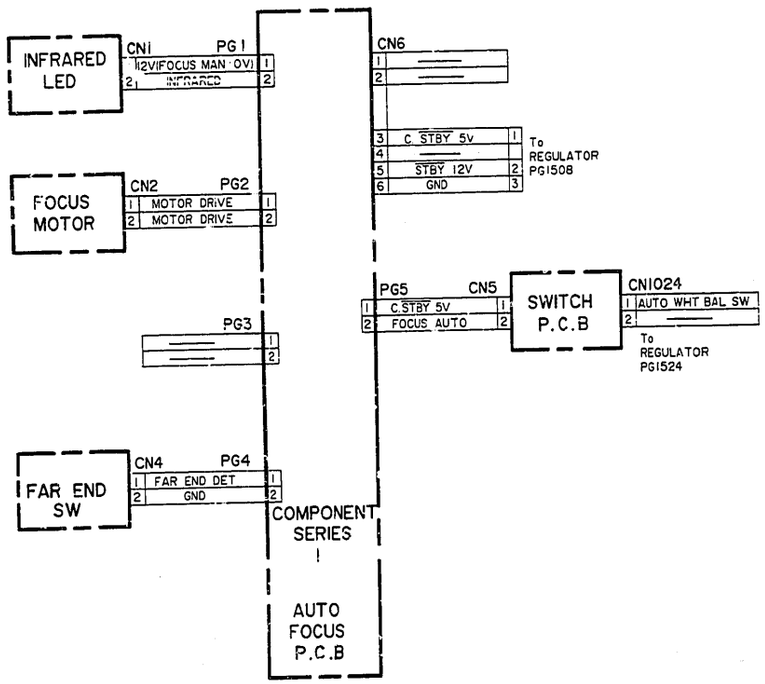
• CIRCUIT BOARD CONNECTION DIAGRAM (EVF)



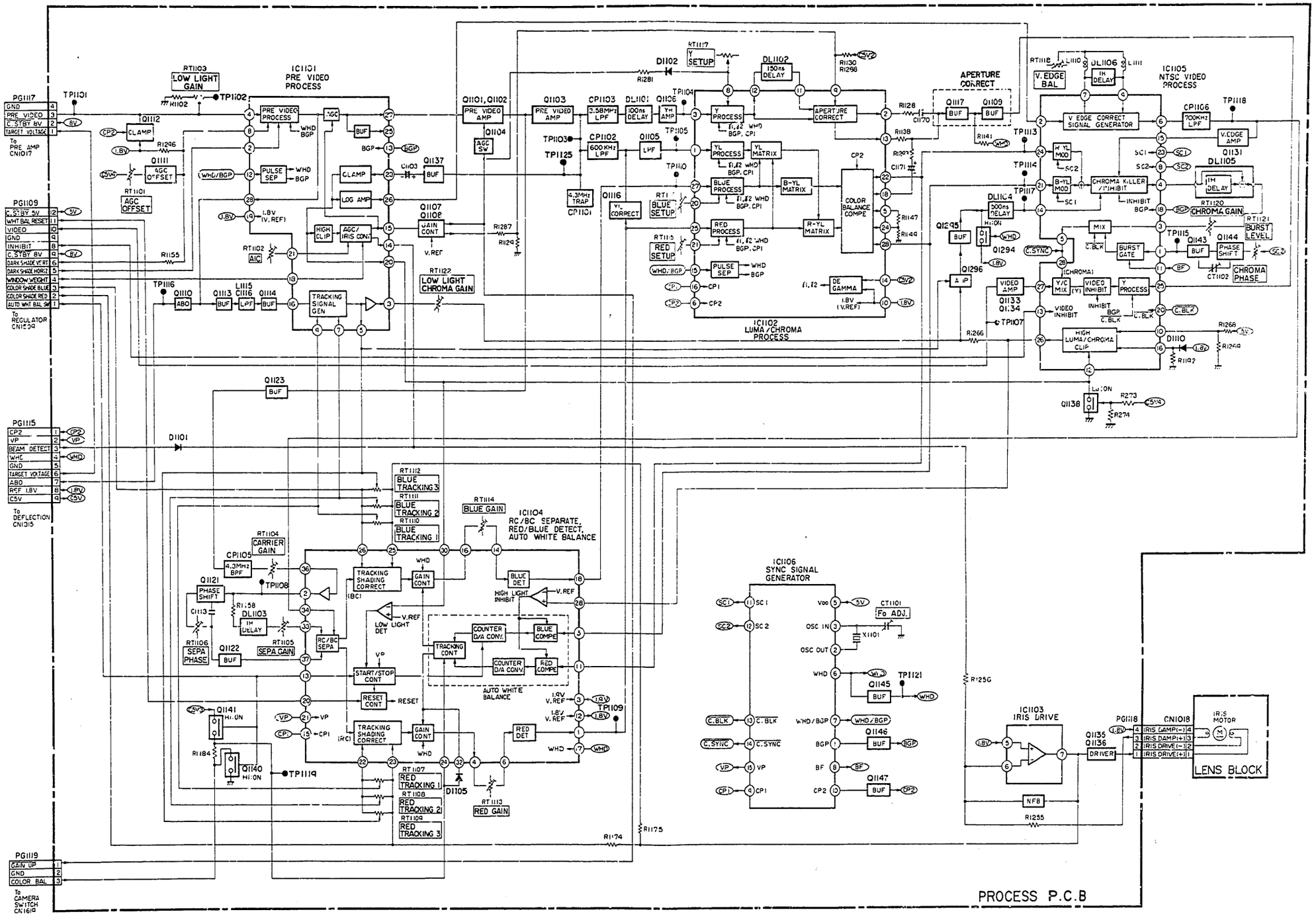

• PRE AMP BLOCK DIAGRAM



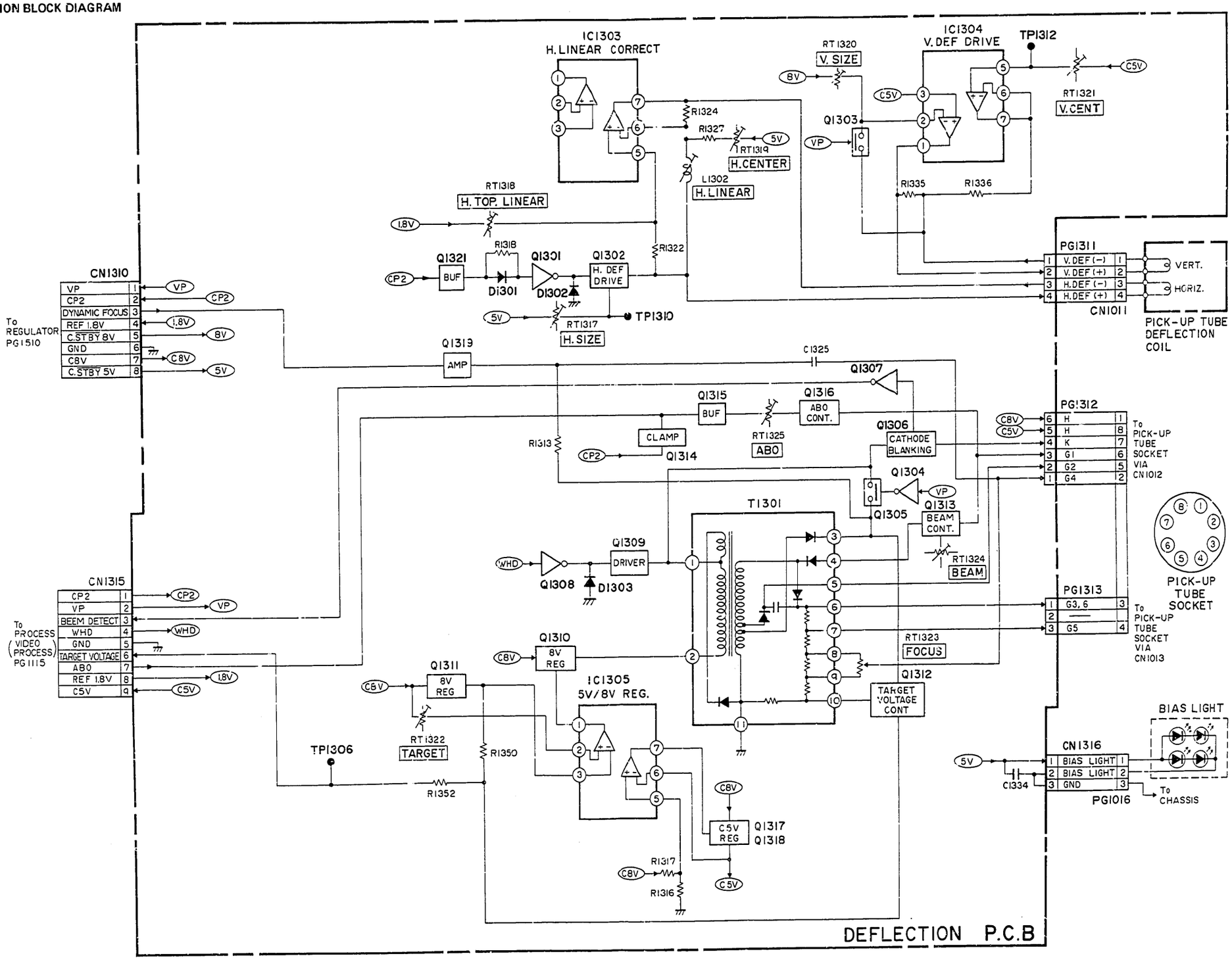

• CIRCUIT BOARD CONNECTION DIAGRAM (AUTO FOCUS)



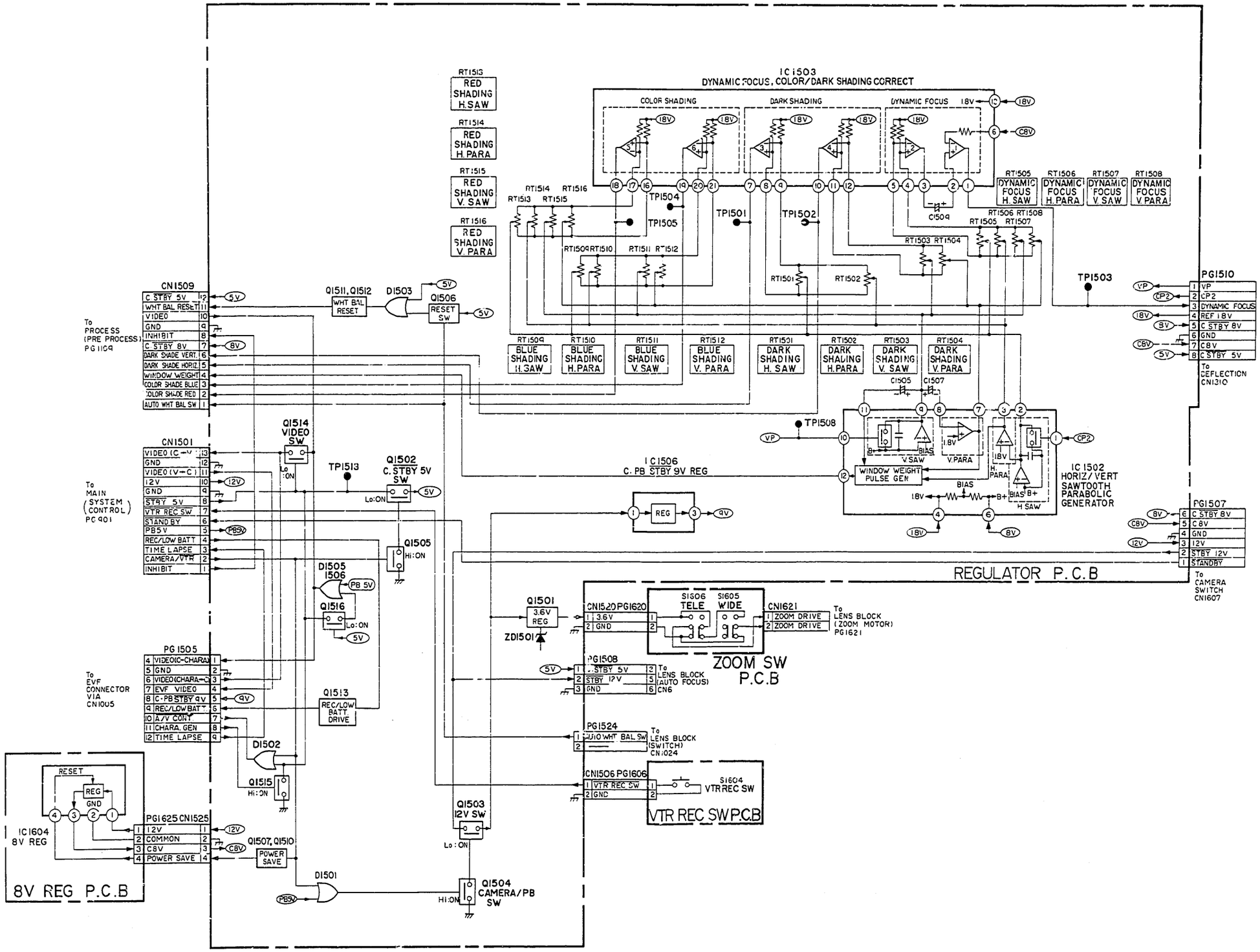
## • PROCESS BLOCK DIAGRAM



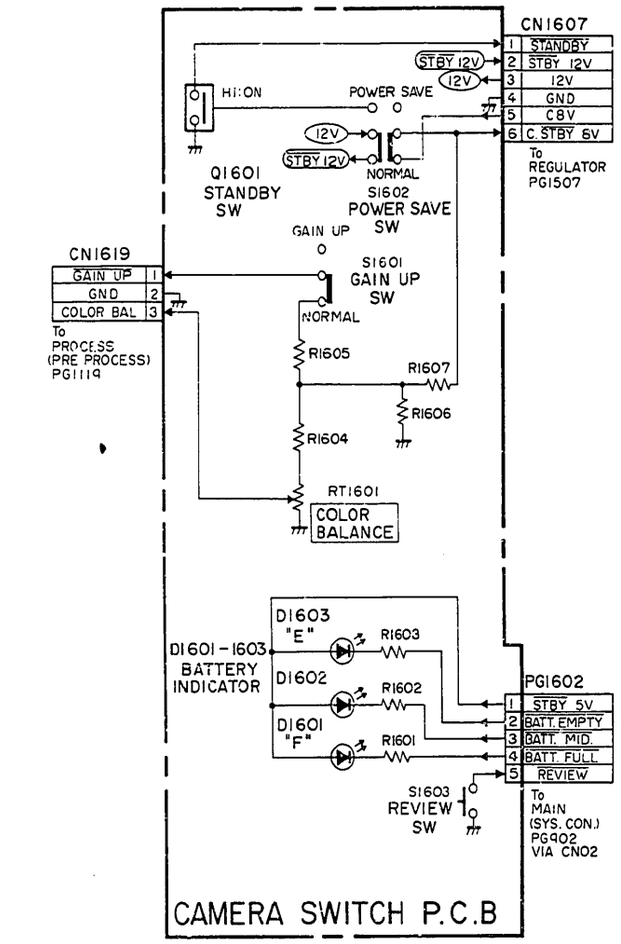
• DEFLECTION BLOCK DIAGRAM



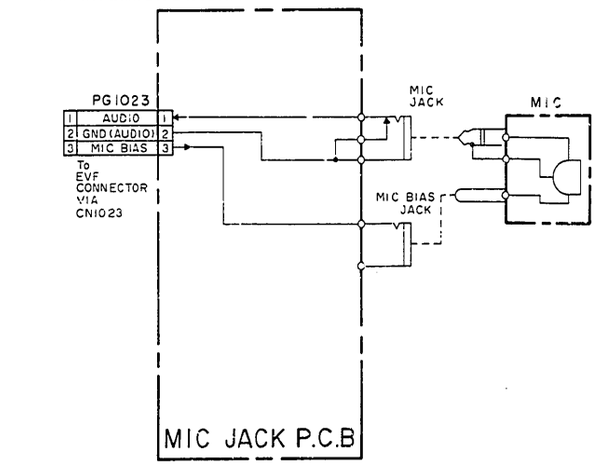
## • REGULATOR· 8V REG· ZOOM SW ·VTR REC SW BLOCK DIAGRAM



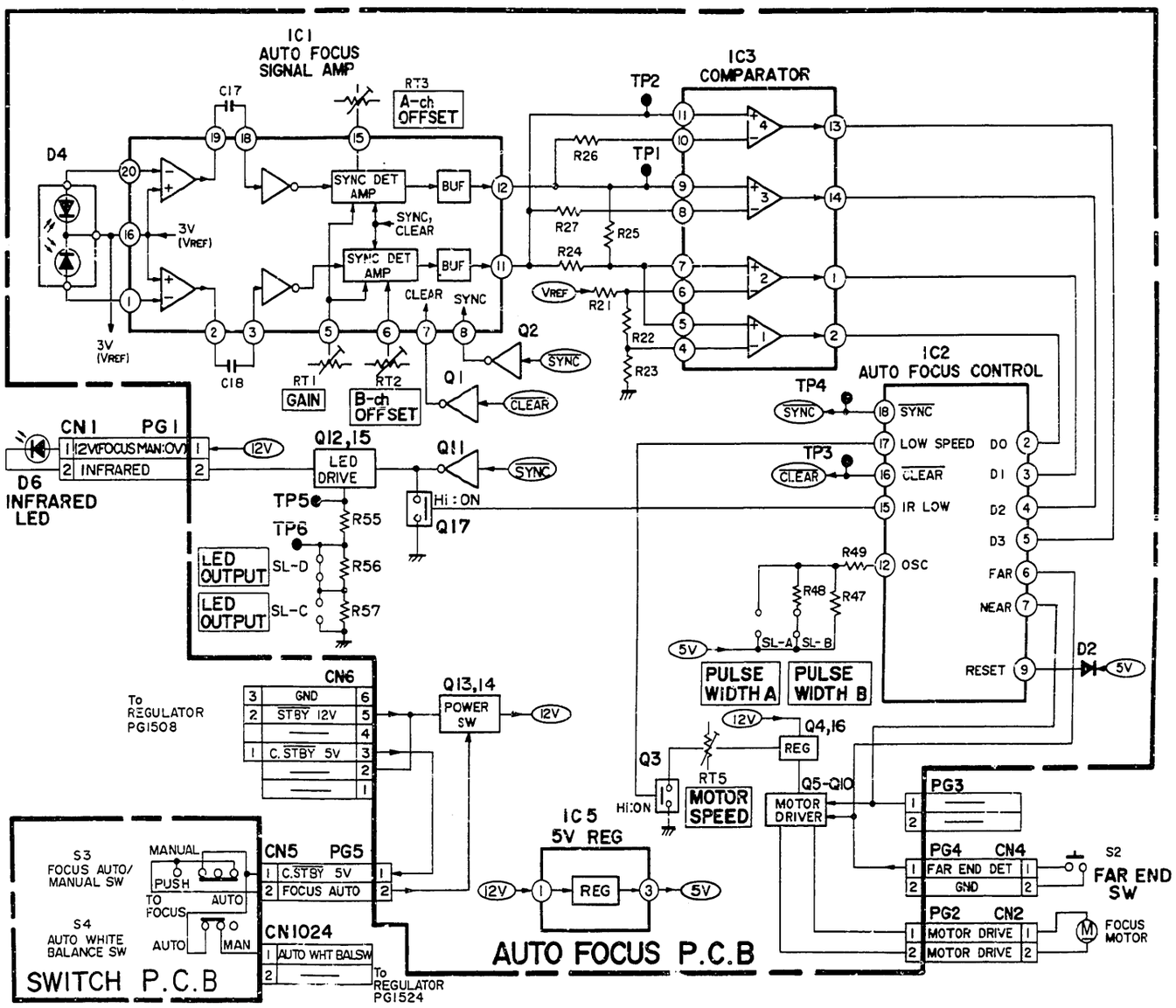
• CAMERA SW BLOCK DIAGRAM



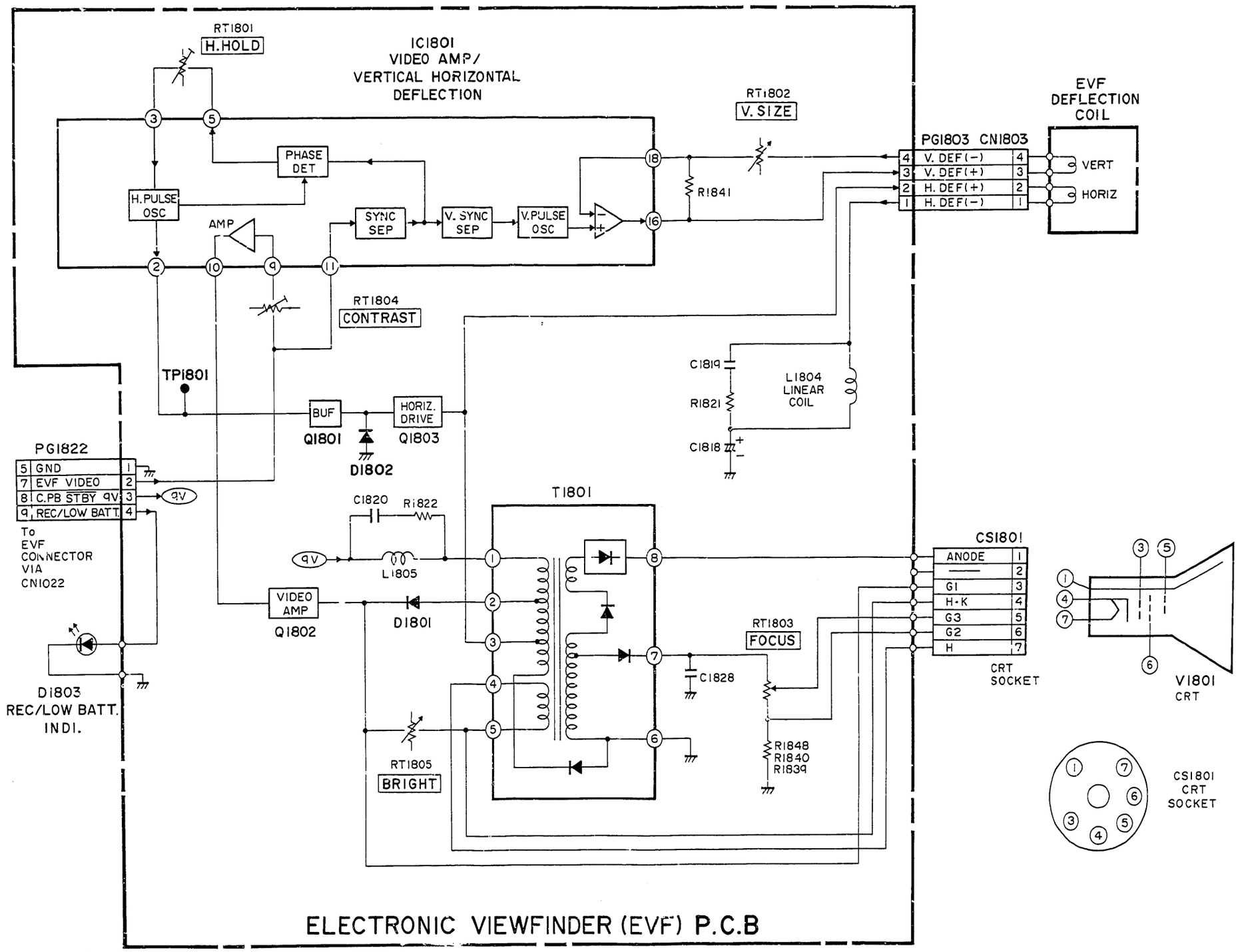

• MIC JACK BLOCK DIAGRAM



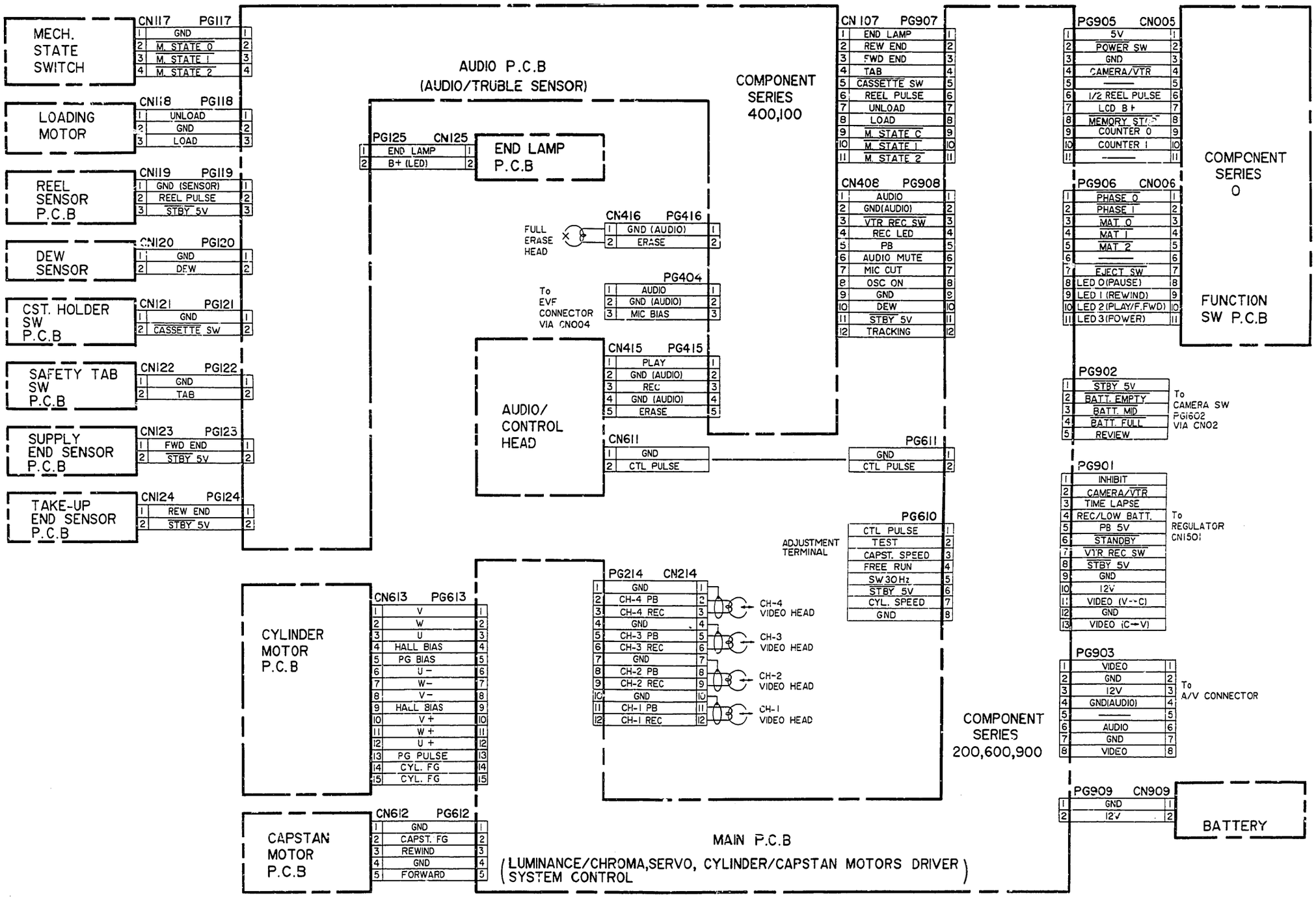

• AUTO FOCUS/SWITCH BLOCK DIAGRAM



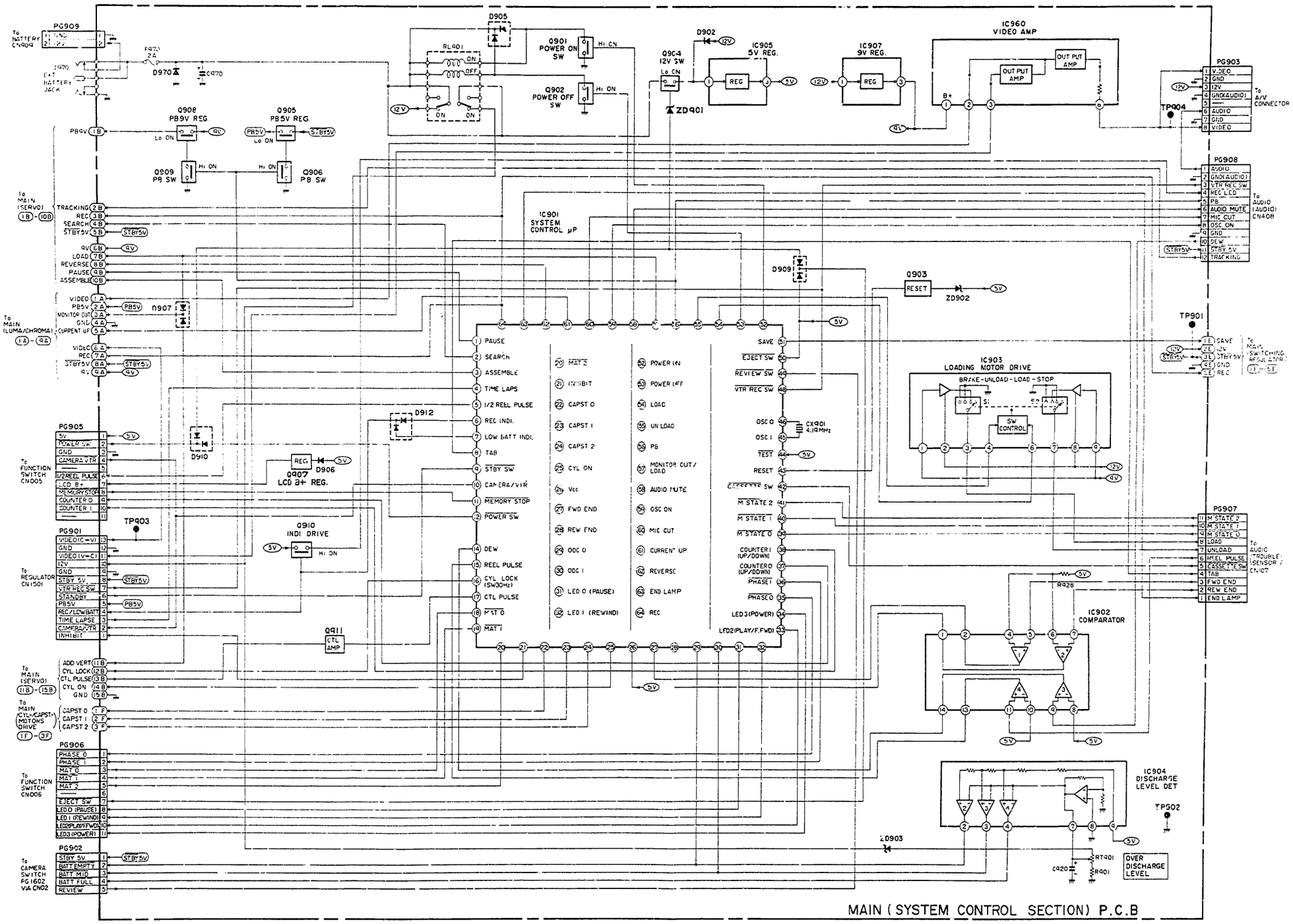
• ELECTRONIC VIEWFINDER (EVF) BLOCK DIAGRAM



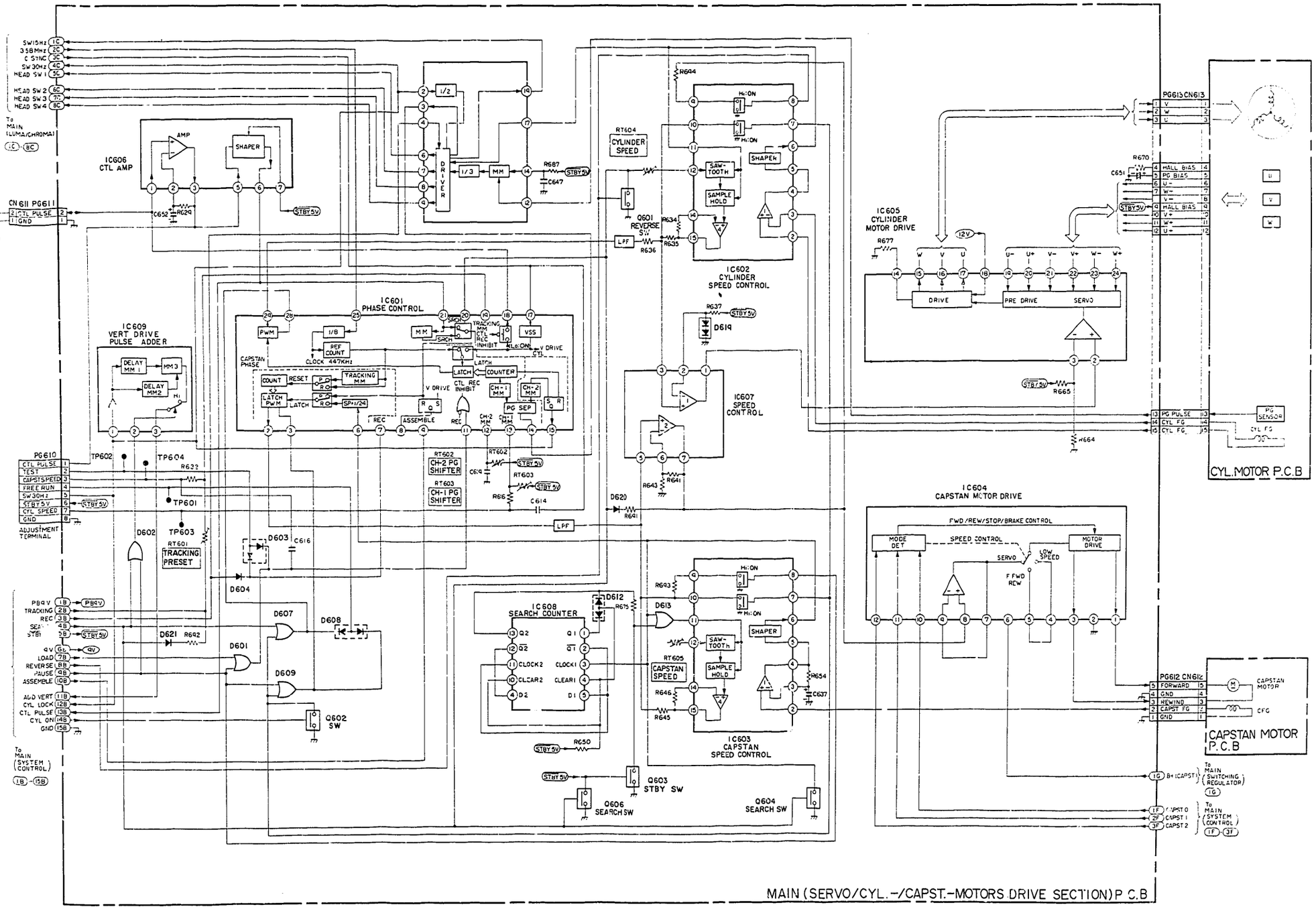
• CIRCUIT BOARD CONNECTION DIAGRAM (VTR)



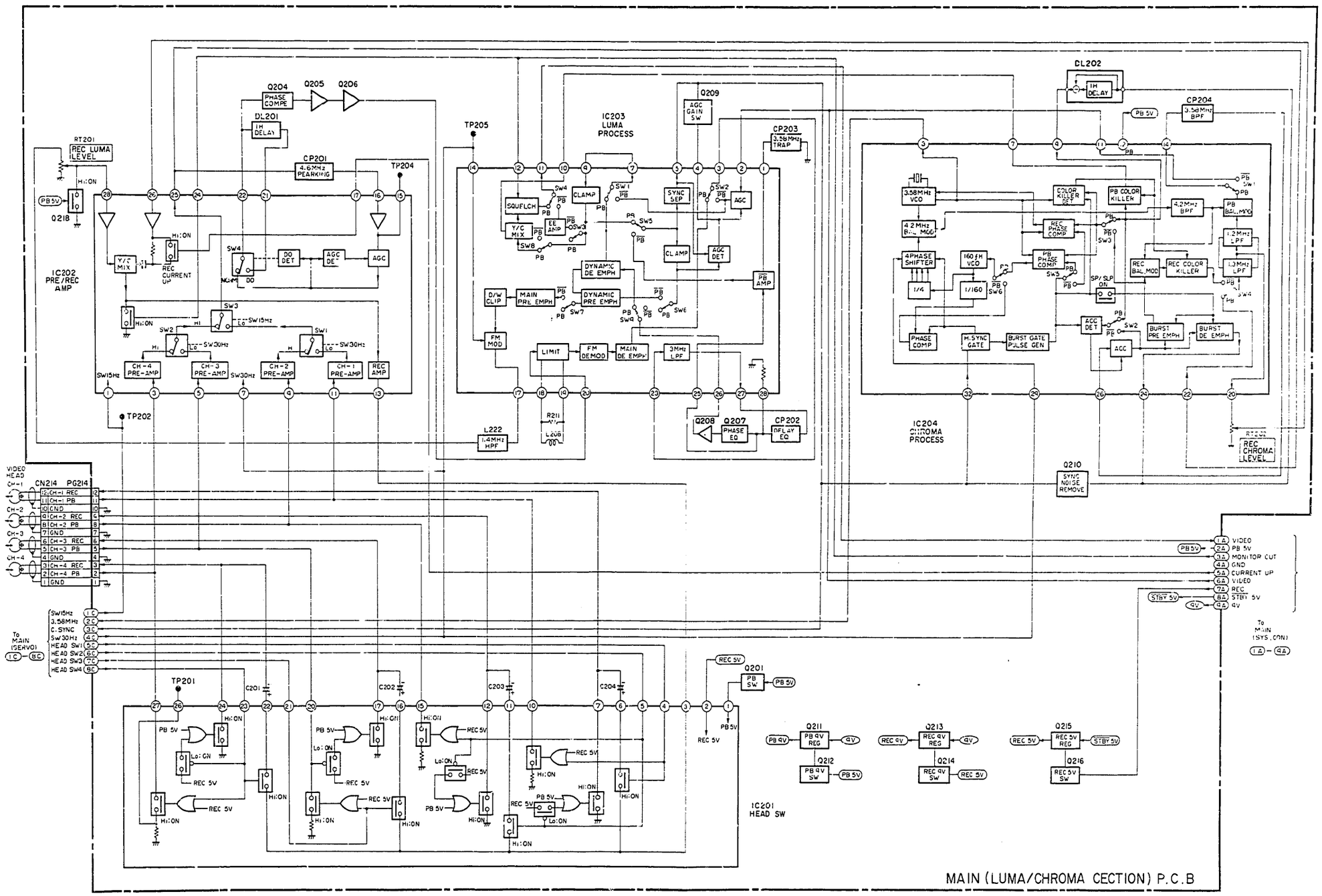
## • SYSTEM CONTROL BLOCK DIAGRAM



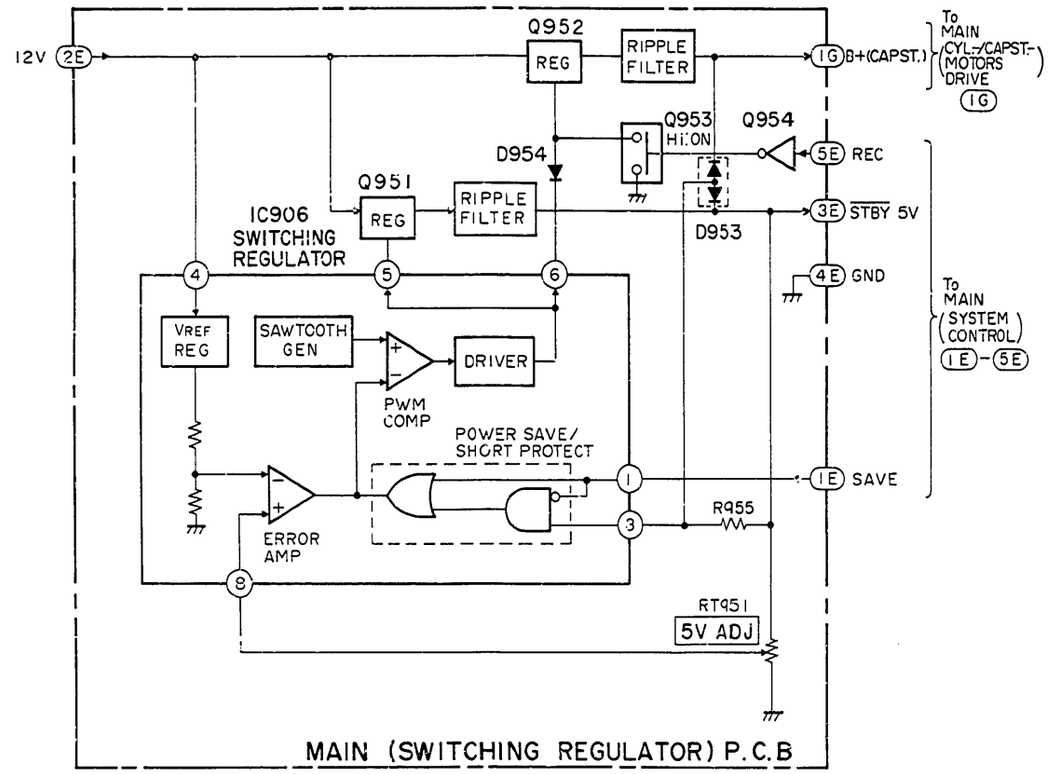
• SERVO. CYL.– /CAPST. – MOTORS DRIVE BLOCK DIAGRAM



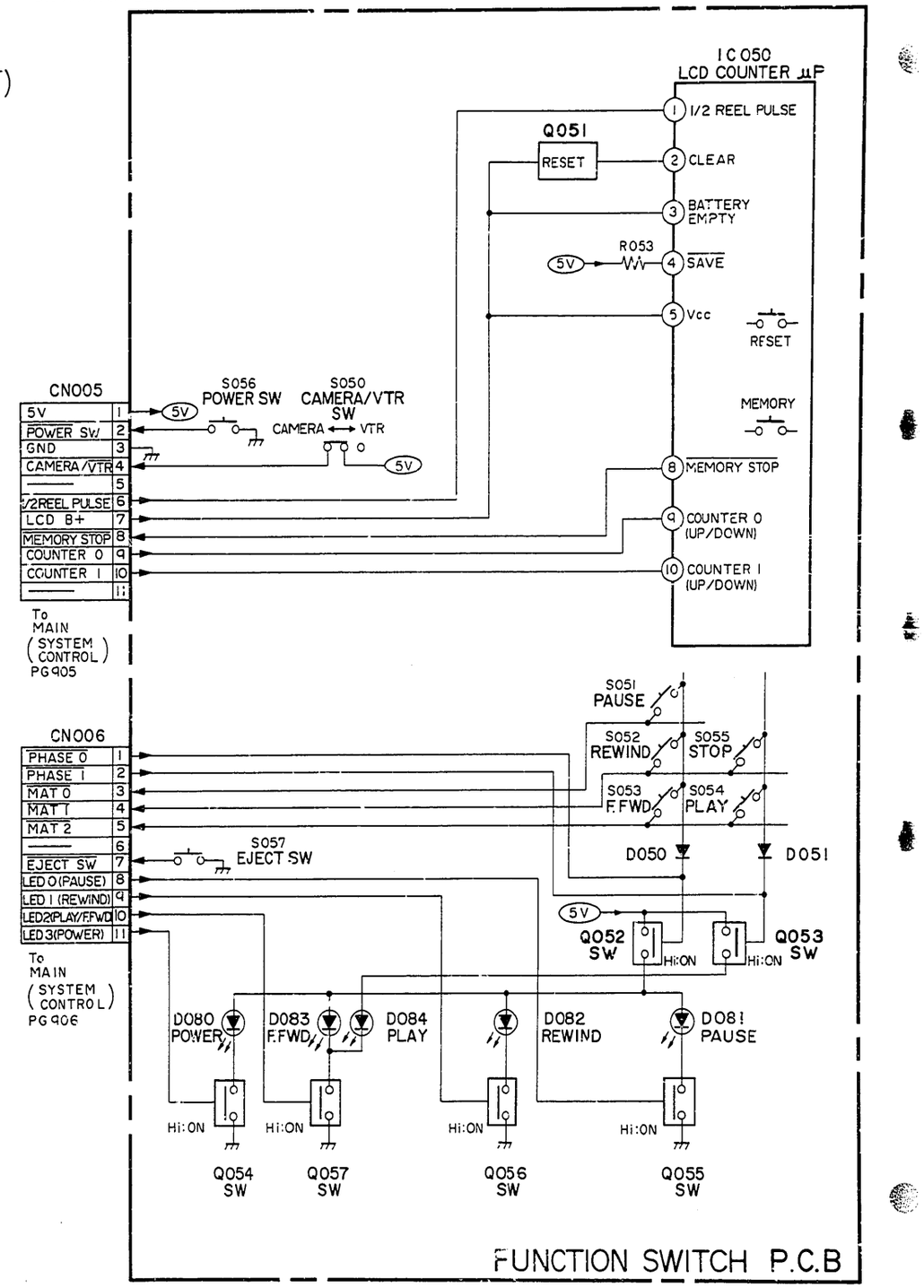
• LUMA/CHROMA BLOCK DIAGRAM



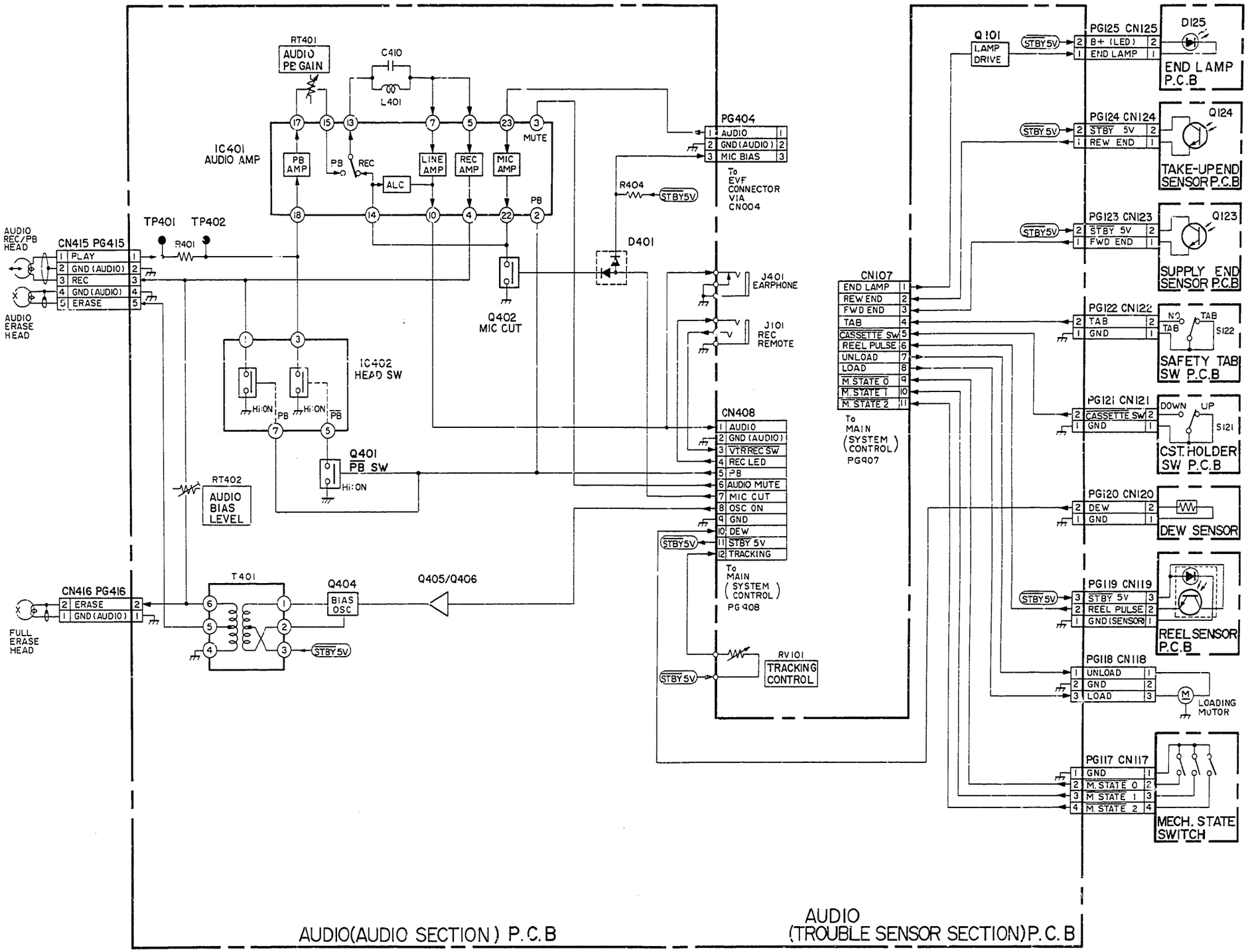
• SWITCHING REGULATOR BLOCK DIAGRAM



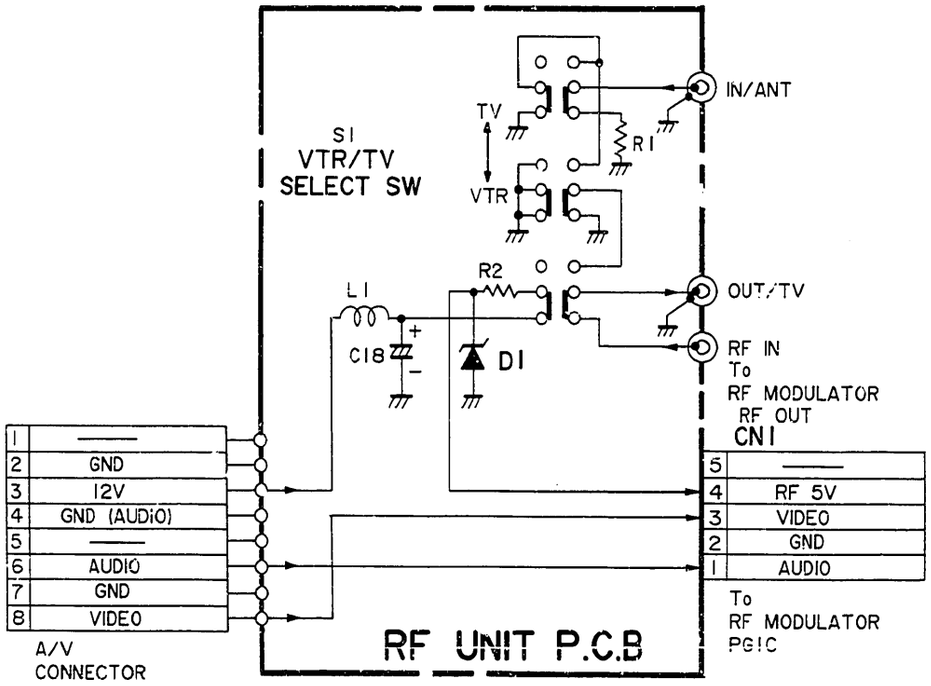

• FUNCTION SW BLOCK DIAGRAM



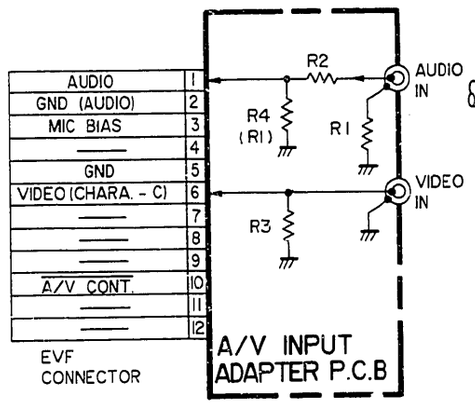
## • AUDIO · TROUBLE SENSOR BLOCK DIAGRAM



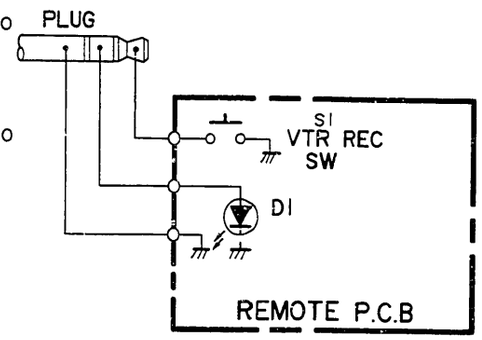
• RF UNIT (VM-RF20A) BLOCK DIAGRAM




• A/V INPUT ADAPTOR (VM-CH20) BLOCK DIAGRAM




• REMOTE CONTROL (VM-RF20) BLOCK DIAGRAM



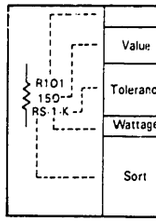

## SCHEMATIC DIAGRAMS AND CIRCUIT BOARD DIAGRAMS

### WHEN USING THIS SERVICE REFERENCE MATERIAL

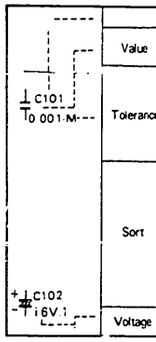
### 1. How to read abbreviations

**Note**

1 Voltage measured at base of chassis with minimum volume control and no signal
2 Nomenclature of Resistors and Capacitors



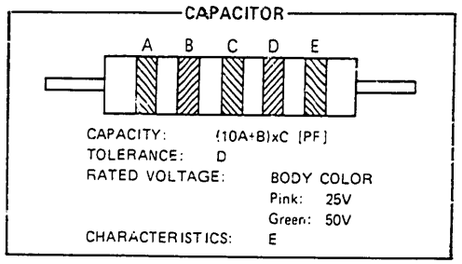

| | | Circuit No |
|---|---|---|
| | Value | No indicated Ω (Ohm)<br>M : 100CkΩ |
| | Tolerance | No indicated : 5%<br>K : 10%<br>M : 20% |
| | Wattage | No indicated ¼ W |
| | Sort | No indicated Carbon film<br>RC Composition<br>RW Wire wound<br>RS Oxide metal film<br>RN Fixed metal film |

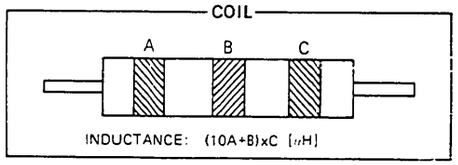



| | | Circuit No |
|---|---|---|
| | Value | No indicated μF<br>P PF |
| | Tolerance | No indicated : 10%<br>J : 5%<br>M : 20%<br>Z : 80% 20%<br>D : 0.5pF<br>C : 0.25pF |
| | Sort | Ceramic |
| | | Electrolitic |
| | | Mylar |
| | | Polyester |
| | | Styrol |
| | Voltage | No indicated 50WV |

3 Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort

### 3. How to read capacity and inductance of resistor shape capacitors and coils




| COLOR | A, B | C | D | E |
|---|---|---|---|---|
| Black | 0 | $10^0$ | ±20% | For temperature compensation |
| Brown | 1 | $10^1$ | | |
| Red | 2 | $10^2$ | | |
| Orange | 3 | $10^3$ | | |
| Yellow | 4 | $10^4$ | | |
| Green | 5 | $10^5$ | | |
| Blue | 6 | | | |
| Violet | 7 | | | |
| Grey | 8 | | ±30% | High dielectric constant type |
| White | 9 | | | For temperature compensation |
| Gold | | $10^{-1}$ | ± 5% | |
| Silver | | $10^{-2}$ | ± 10% | High dielectric constant type |

### 2. Cautions on use of MOS IC

1. The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
2. High voltages may be applied during doldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
3. The human body, clothes made of synthetic fibres or nylon gloves may be charged with several thousands volts of static electricity because of friction, so a workers should be grounded.
4. Be sure to ground measuring instruments such as oscillo scopes, VTVMs, etc. used for repairs.

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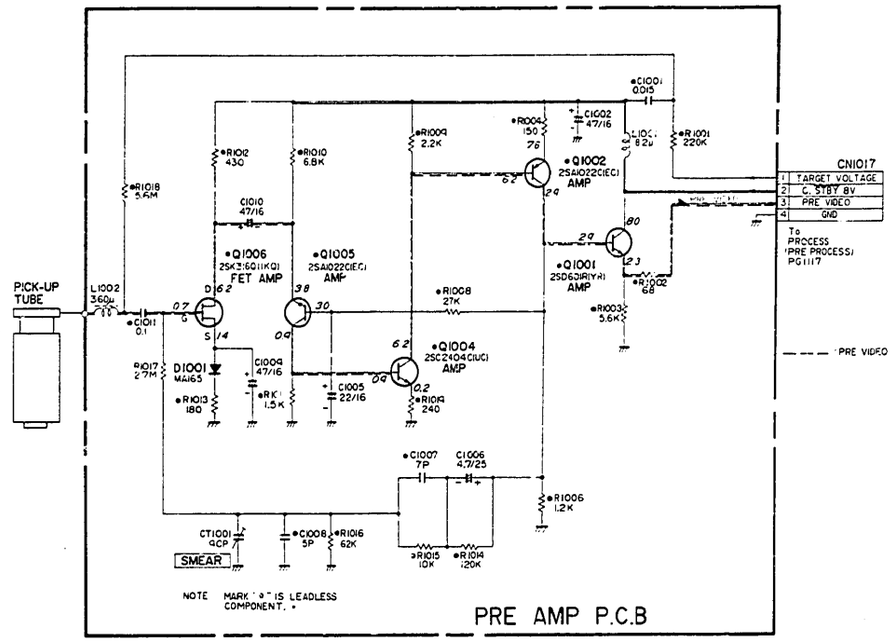
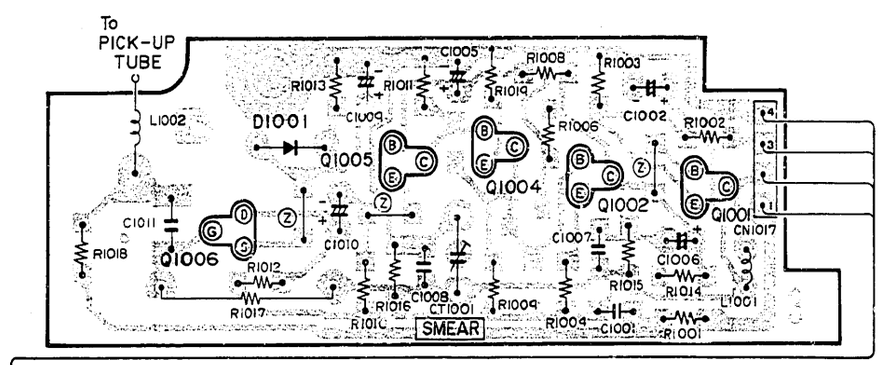
### PRE AMP SCHEMATIC DIAGRAM




### PRE AMP CIRCUIT BOARD DIAGRAM




CN1017

| | |
|---|---|
| 4 | GND |
| 3 | PRE VIDEO |
| 2 | C. STBY 8V |
| 1 | TARGET VOLTAGE |

To PROCESS (PRE PROCESS) PG1117

*NOTE: MARK "Ⓩ" IS LEADLESS JUMPER.

| Q1006 | |
|---|---|
| B | 6.2 |
| C | 0.7 |
| E | 1.4 |

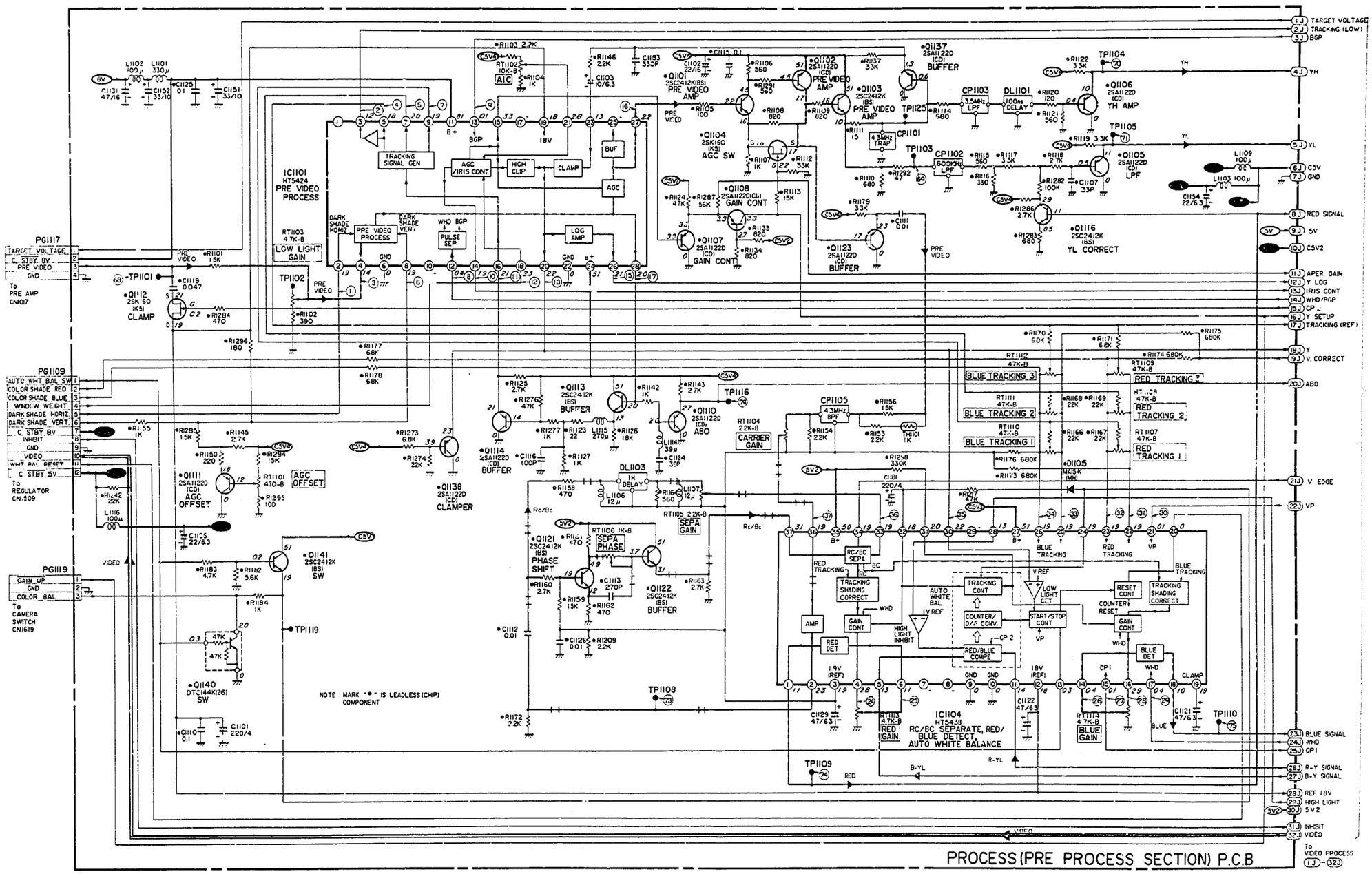
| Q1005 | |
|---|---|
| B | 3.0 |
| C | 0.9 |
| E | 3.8 |

| Q1004 | |
|---|---|
| B | 0.9 |
| C | 6.2 |
| E | 0.2 |

| Q1002 | |
|---|---|
| B | 6.2 |
| C | 2.9 |
| E | 7.6 |

| Q1001 | |
|---|---|
| B | 2.9 |
| C | 8.0 |
| E | 2.3 |

# PROCESS (PRE PROCESS) SCHEMATIC DIAGRAM

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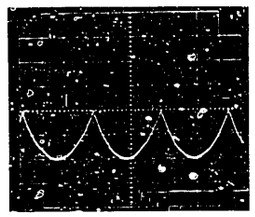
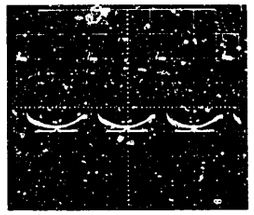
## PROCESS WAVEFORMS

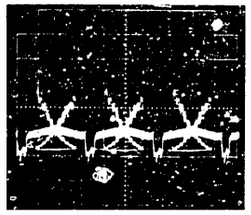
1-A IC1101-2
0.1V/20μsec.cm



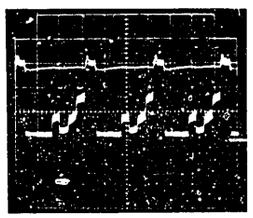
2-A IC1101-3
50mV/20μsec.cm



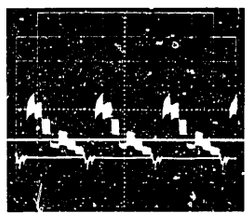
3-A IC1101-4
0.1V/20μsec.cm



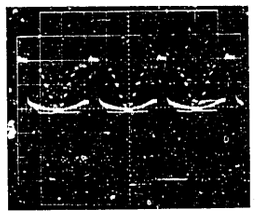
2-B IC1101-3(Color bar)
50mV/20μsec.cm



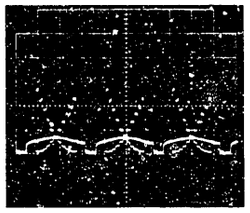
3-B IC1101-4(Color bar)
0.1V/20μsec.cm



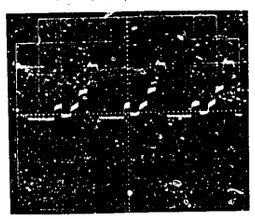
4-A IC1101-5
0.1V/20μsec.cm



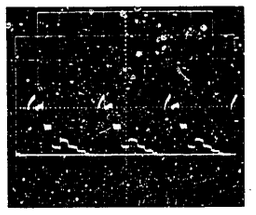
5-A IC1101-7
0.2V/20μsec.cm



4-B IC1101-5(Color bar)
0.1V/20μsec.cm

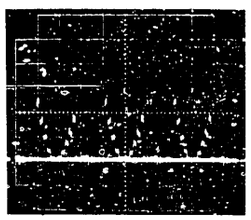


5-B IC1101-7(Color bar)
0.2V/20μsec.cm

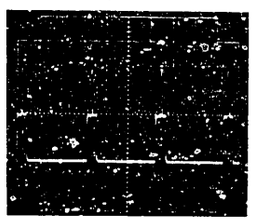


## PROCESS WAVEFORMS

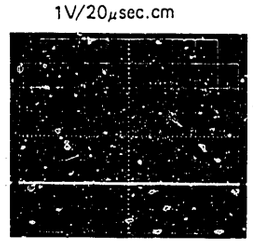
7-A IC1101-9
0.1V/20μsec.cm



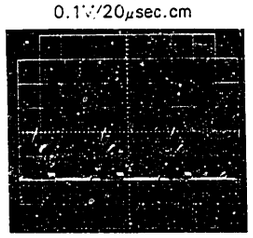
8-A IC1101-12
1V/20μsec.cm



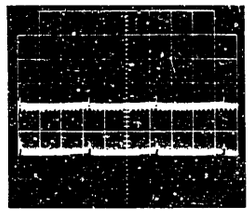
9-A IC1101-13
1V/20μsec.cm



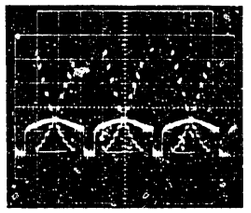
7-B IC1101-9(Color bar)
0.1V/20μsec.cm



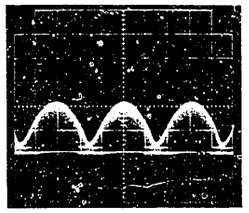
10-A IC1101-14
50mV/20μsec.cm



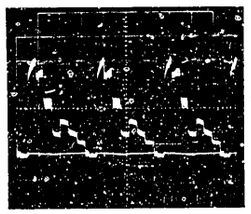
11-A IC1101-16
0.1V/20μsec.cm



12-A IC1101-18
2V/20μsec.cm



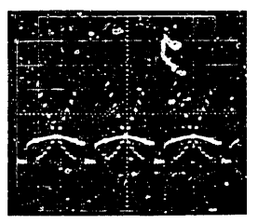
11-B IC1101-16(Color bar)
0.1V/20μsec.cm



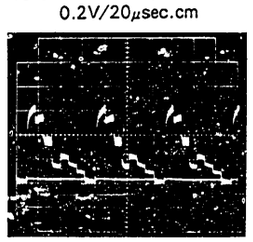


## PROCESS WAVEFORMS

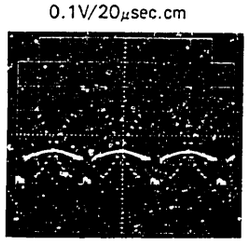
13-A IC1101-20
0.2V/20μsec.cm



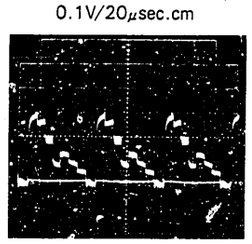
13-B IC1101-20(Color bar)
0.2V/20μsec.cm



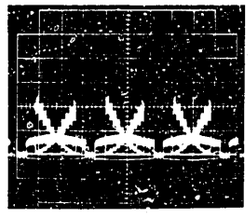
15-A IC1101-26
0.1V/20μsec.cm



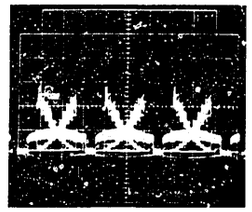
15-B IC1101-26(Color bar)
0.1V/20μsec.cm



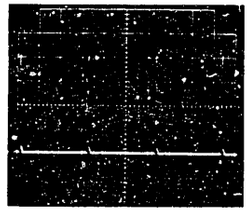
16-A IC1101-27
0.2V/20μsec.cm



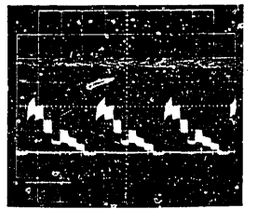
17-A IC1101-28
0.2V/20μsec.cm



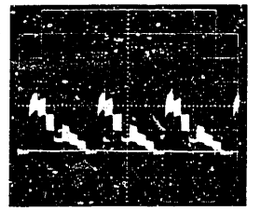
18-A IC1102-6
1V/20μsec.cm



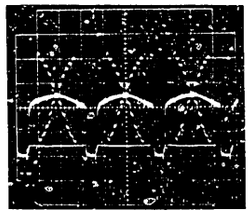
16-B IC1101-27(Color bar)
0.2V/20μsec.cm



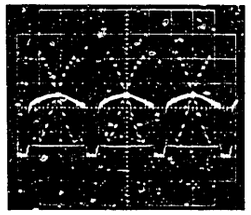
17-B IC1101-28(Color bar)
0.2V/20μsec.cm



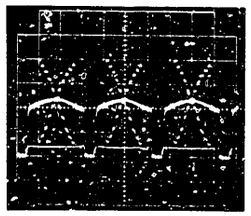
19-A IC1102-11
0.2V/20μsec.cm



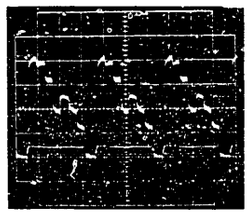
20-A IC1102-12
0.2V/20μsec.cm



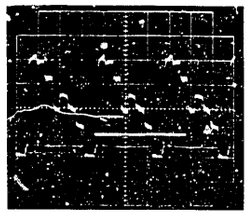
21-A IC1102-13
0.2V/20μsec.cm



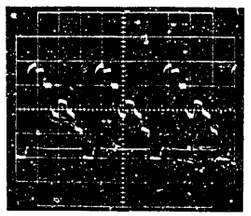
19-B IC1102-11(Color bar)
0.2V/20μsec.cm



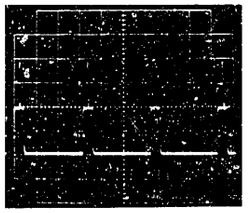
20-B IC1102-12(Color bar)
0.2V/20μsec.cm



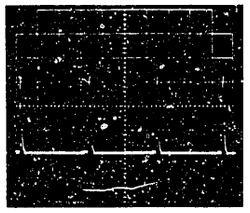
21-B IC1102-13(Color bar)
0.2V/20μsec.cm



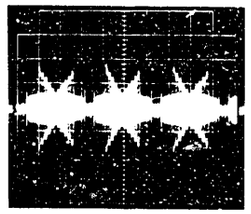
22-A IC1102-15
1V/20μsec.cm



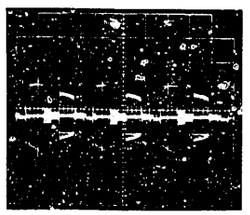
23-A IC1102-16
1V/20μsec.cm



24-A IC1104-4
0.1V/20μsec.cm



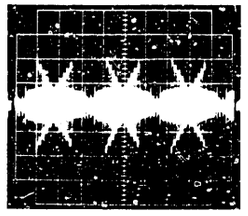
24-B IC1104-4(Color bar)
0.1V/20μsec.cm



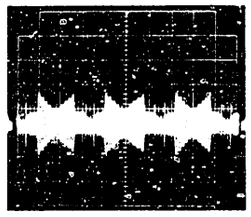




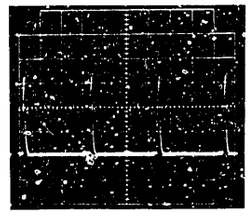
25-A IC1104-6
50mV/20μsec.cm



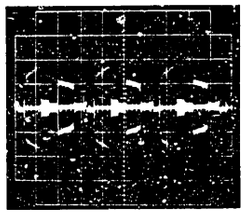
26-A IC1104-14
50mV/20μsec.cm



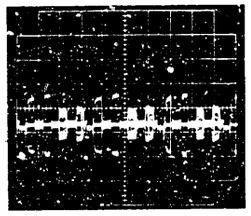
27-A IC1104-15
1V/20μsec.cm



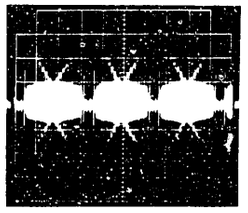
25-B IC1104-6(Color bar)
50mV/20μsec.cm



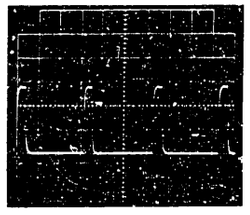
26-B IC1104-14(Color bar)
50mV/20μsec.cm



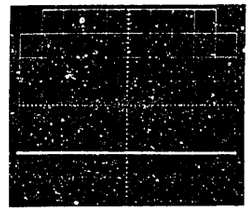
28-A IC1104-16
0.1V/20μsec.cm



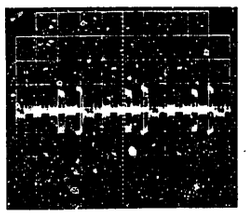
29-A IC1104-17
1V/20μsec.cm



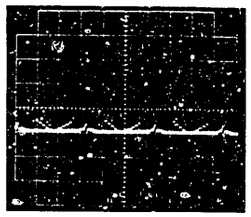
30-A IC1104-21
0.5V/5msec.cm



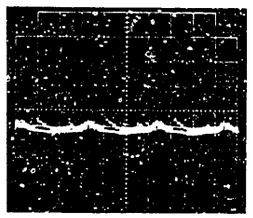
28-B IC1104-16(Color bar)
0.1V/20μsec.cm



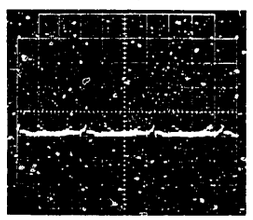
31-A IC1104-22
50mV/20μsec.cm



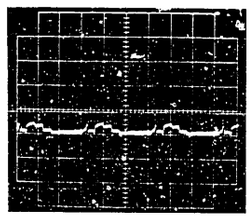
32-A IC1104-23
50mV/20μsec.cm



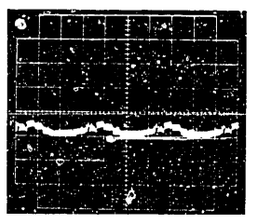
33-A IC1104-25
50mV/20μsec.cm



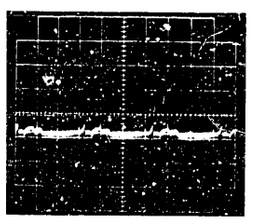
31-B IC1104-22(Color bar)
50mV/20μsec.cm



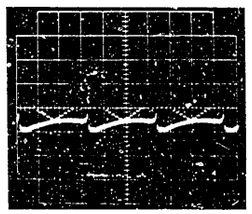
32-B IC1104-23(Color bar)
50mV/20μsec.cm



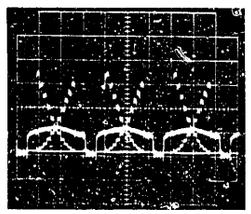
33-B IC1104-25(Color bar)
50mV/20μsec.cm



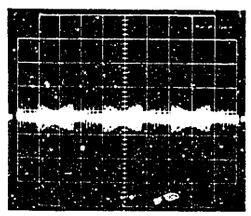
34-A IC1104-26
50mV/20μsec.cm



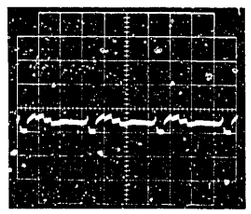
35-A IC1104-30
0.2V/20μsec.cm



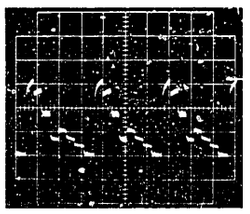
36-A IC1104-33
50mV/20μsec.cm



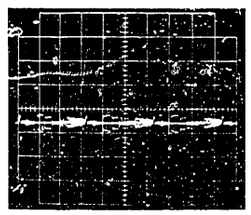
34-B IC1104-26(Color bar)
50mV/20μsec.cm



35-B IC1104-30(Color bar)
0.2V/20μsec.cm



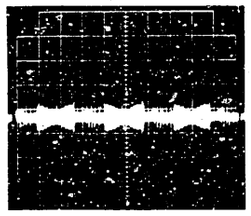
36-B IC1104-33(Color bar)
50mV/20μsec.cm



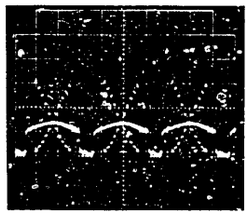




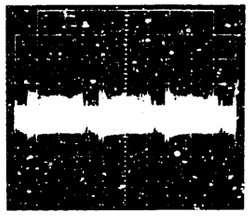
37-A IC1104-36
50mV/20μsec.cm



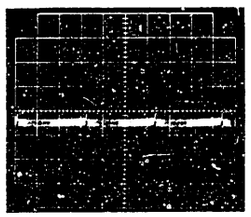
38-A IC1105-2
0.1V/20μsec.cm



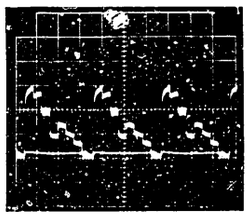
39-A IC1105-4
50mV/20μsec.cm



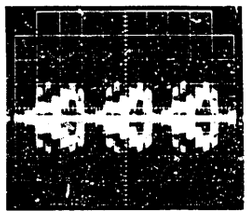
37-B IC1104-36(Color bar)
50mV/20μsec.cm



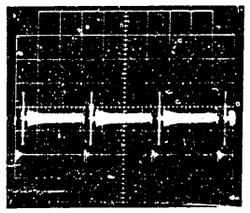
38-B IC1105-2(Color bar)
0.1V/20μsec.cm



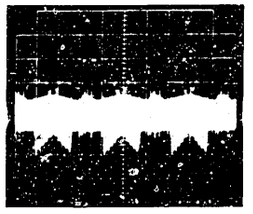
39-B IC1105-4(Color bar)
0.2V/20μsec.cm



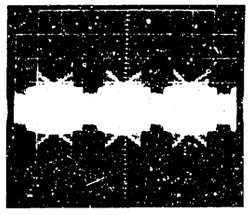
40-A IC1105-5
0.1V/20μsec.cm



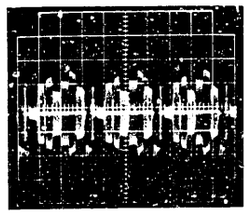
41-A IC1105-6
0.1V/20μsec.cm



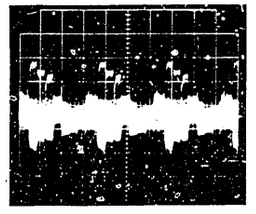
42-A IC1105-7
0.2V/20μsec.cm



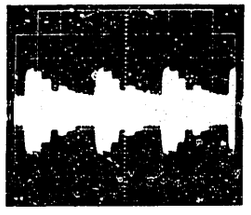
40-B IC1105-5(Color bar)
0.1V/20μsec.cm



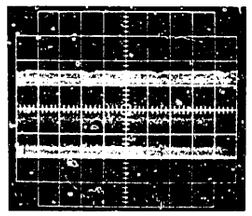
41-B IC1105-6
0.1V/20μsec.cm



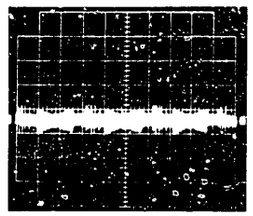
42-B IC1105-7(Color bar)
0.2V/20μsec.cm



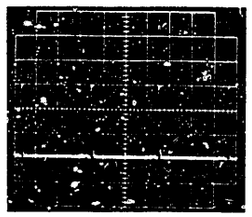
43-A IC1105-8
0.2V/20μsec.cm



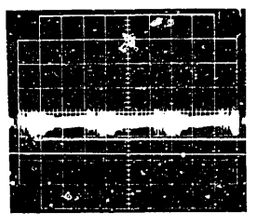
44-A IC1105-9
50mV/20μsec.cm



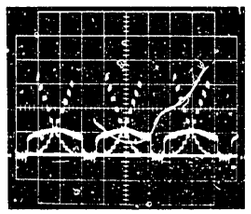
45-A IC1105-11
1V/20μsec.cm



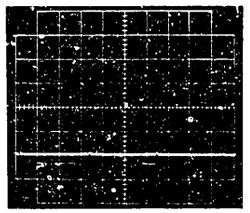
44-B IC1105-9(Color bar)
50mV/20μsec.cm



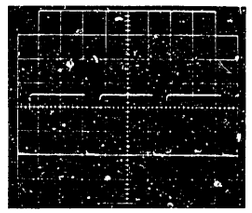
46-A IC1105-12
0.2V/20μsec.cm



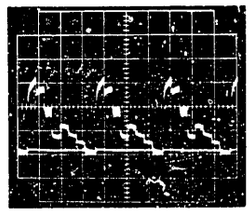
47-A IC1105-18
1V/20μsec.cm



48-A IC1105-20
2V/20μsec.cm



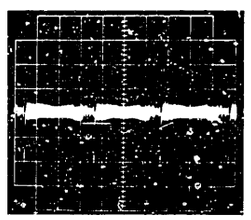
46-B IC1105-12(Color bar)
0.2V/20μsec.cm



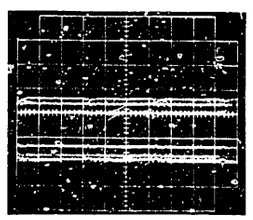




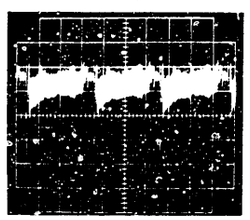
49-A IC1105-21
0.1V/20μsec.cm



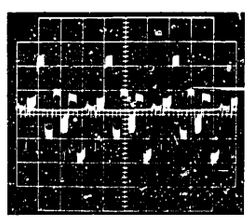
50-A IC1105-23
0.2V/20μsec.cm



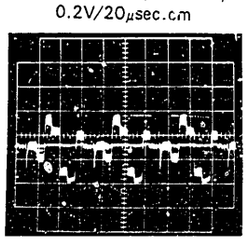
51-A IC1105-24
50mV/20μsec.cm



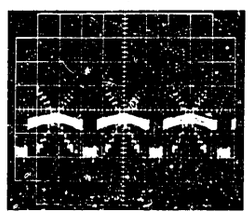
49-B IC1105-21(Color bar)
0.1V/20μsec.cm



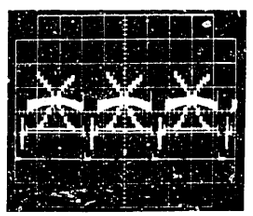
51-B IC1105-24(Color bar)
0.2V/20μsec.cm



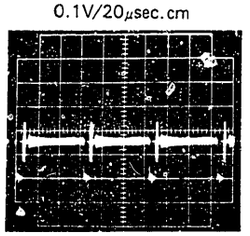
52-A IC1105-25
0.2V/20μsec.cm



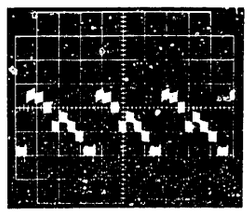
53-A IC1105-27
0.5V/20μsec.cm



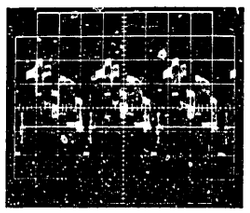
54-A IC1105-28
0.1V/20μsec.cm



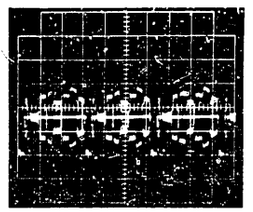
52-B IC1105-25(Color bar)
0.2V/20μsec.cm



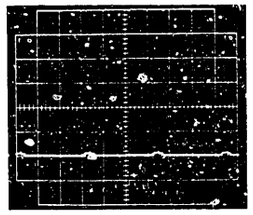
53-B IC1105-27(Color bar)
0.5V/20μsec.cm



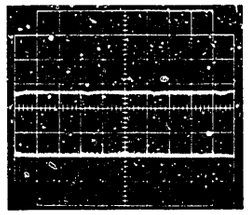
54-B IC1105-28(Color bar)
0.1V/20μsec.cm



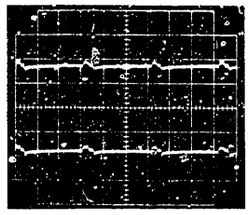
55-A IC1106-1
1V/20μsec.cm



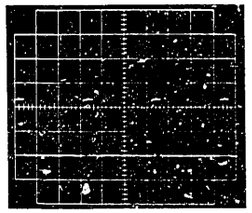
56-A IC1106-2
2V/20μsec.cm



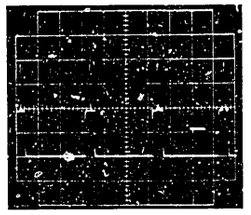
57-A IC1106-3
0.5V/20μsec.cm



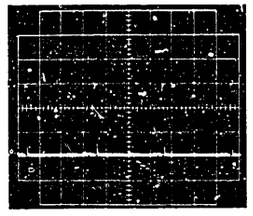
58-A IC1106-6
2V/20μsec.cm



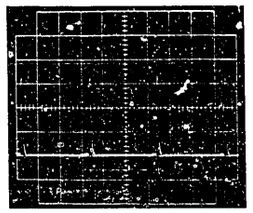
59-A IC1106-7
1V/20μsec.cm



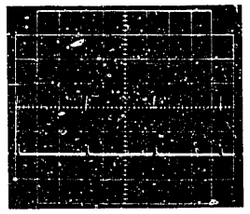
60-A IC1106-8
1V/20μsec.cm



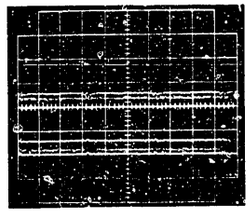
61-A IC1106-9
1V/20μsec.cm



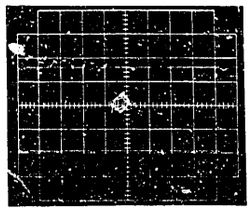
62-A IC1106-10
2V/20μsec.cm



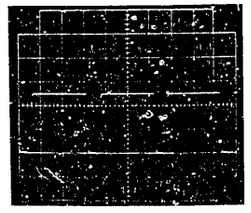
63-A IC1106-11
0.2V/20μsec.cm



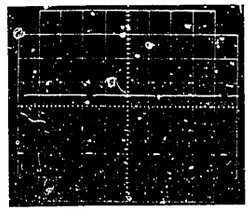
64-A IC1106-12
0.2V/20μsec.cm



65-A IC1106-13
2V/20μsec.cm



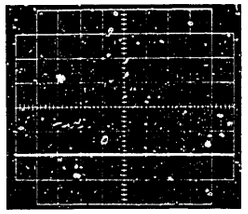
66-A IC1106-14
2V/20μsec.cm



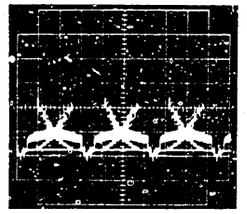




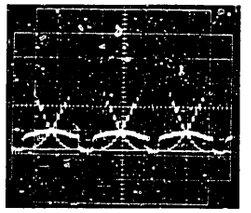
67-A IC1106-15
1V/20μsec.cm



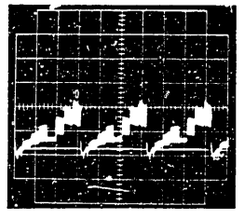
68-A TP1101
0.2V/20μsec.cm



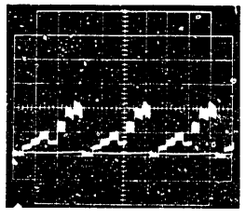
69-A TP1103
0.2V/20μsec.cm



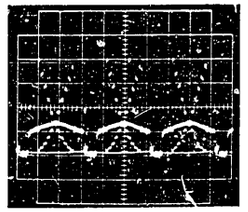
68-B TP1101(Color bar)
0.2V/20μsec.cm



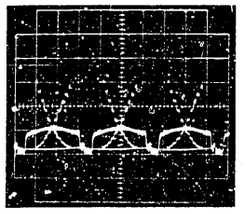
69-B TP1103(Color bar)
0.2V/20μsec.cm



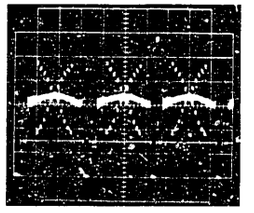
70-A TP1104
50mV/20μsec.cm



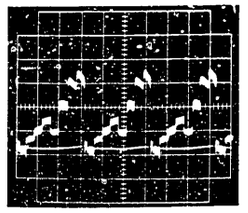
71-A TP1105
50mV/20μsec.cm



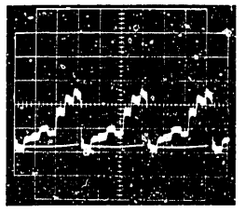
72-A TP1107
0.2V/20μsec.cm



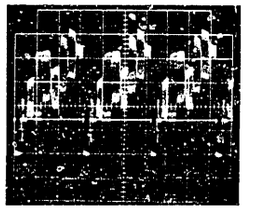
70-B TP1104(Color bar)
50mV/20μsec.cm



71-B TP1105(Color bar)
50mV/20μsec.cm

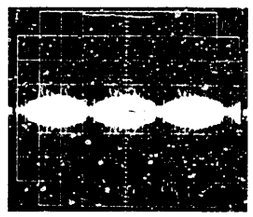


72-B TP1107(Color bar)
0.5V/20μsec.cm

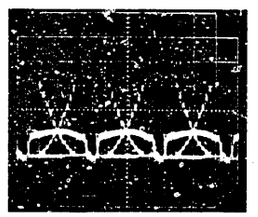


## PROCESS WAVEFORMS

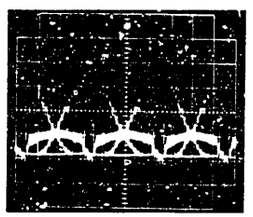
73-A TP1108
0.2V/20μsec.cm



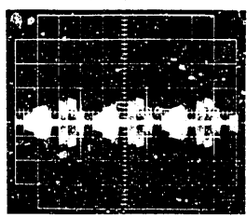
74-A TP1109
50mV/20μsec.cm



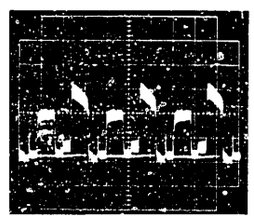
75-A TP1110
50mV/20μsec.cm



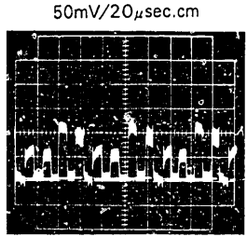
73-B TP1108(Color bar)
0.2V/20μsec.cm



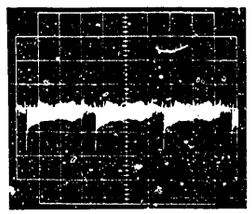
74-B TP1109(Color bar)
50mV/20μsec.cm



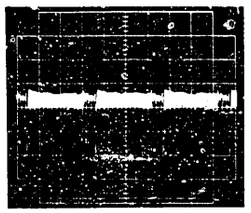
75-B TP1110(Color bar)
50mV/20μsec.cm



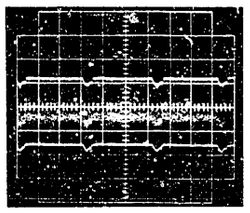
76-A TP1113
0.1V/20μsec.cm



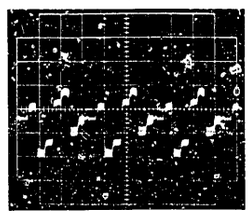
77-A TP1114
0.1V/20μsec.cm



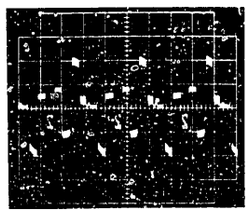
78-A TP1115
0.2V/20μsec.cm



76-B TP1113(Color bar)
0.2V/20μsec.cm

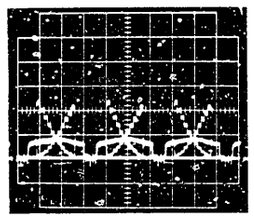


77-B TP1114(Color bar)
0.1V/20μsec.cm

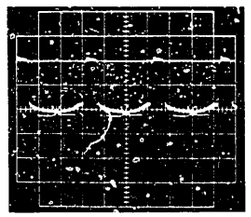


## PROCESS WAVEFORMS

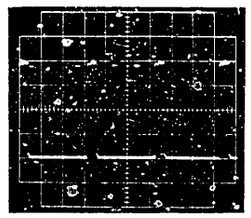
79-A TP1116
0.2V/20μsec.cm



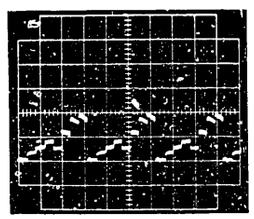
80-A TP1117
0.2V/20μsec.cm



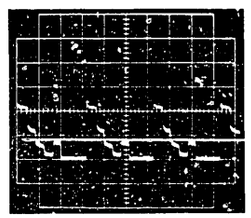
81-A TP1121
1V/20μsec.cm



79-B TP1116(Color bar)
0.2V/20μsec.cm

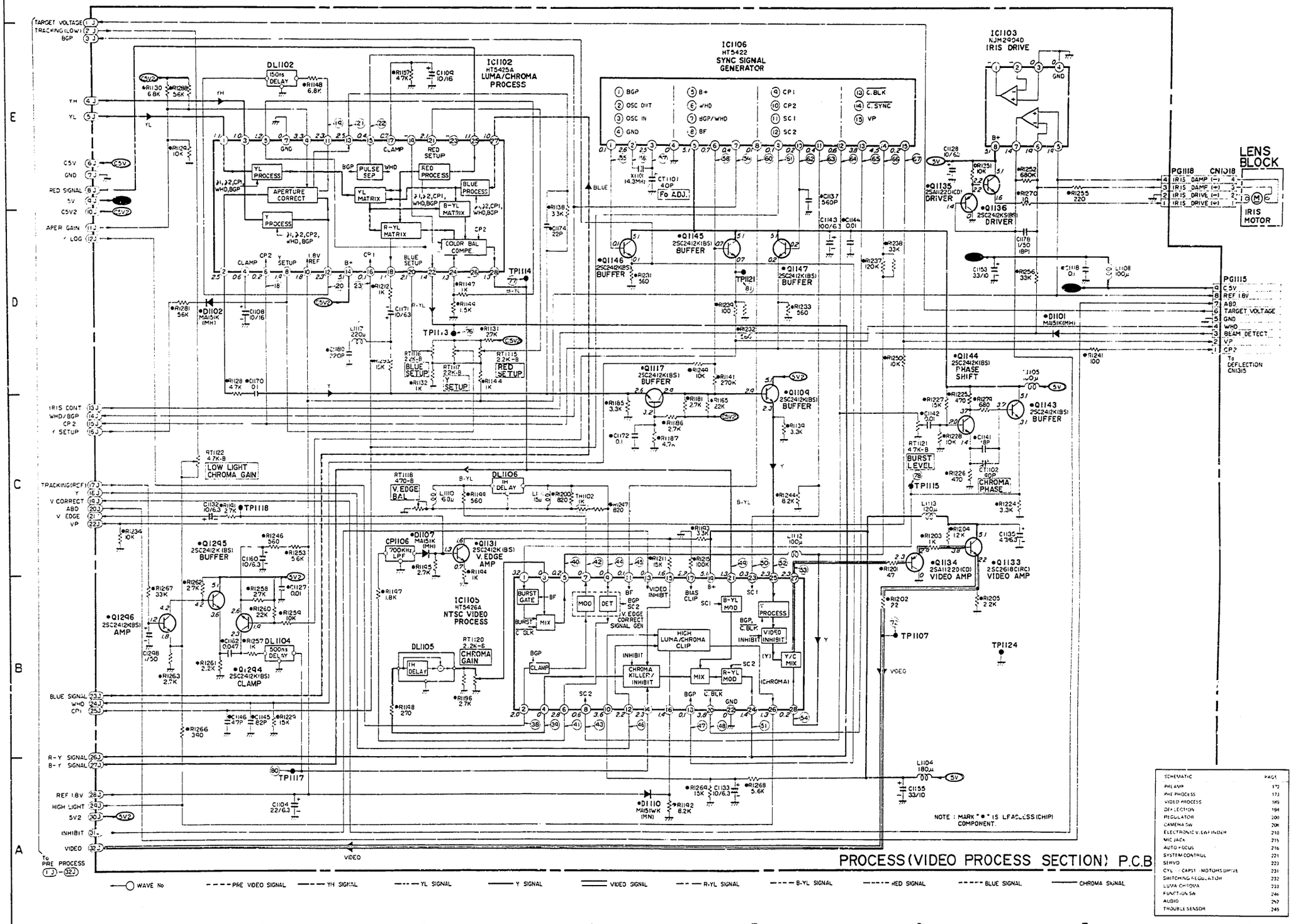


80-B TP1117(Color bar)
0.2V/20μsec.cm



– MEMO –

## PROCESS (VIDEO PROCESS) SCHEMATIC DIAGRAM




| SCHEMATIC | PAGE |
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| PRE AMP | 172 |
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| DEFLECTION | 194 |
| REGULATOR | 200 |
| CAMERA SW | 208 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
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| SYSTEM CONTROL | 221 |
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| LUMA CHROMA | 233 |
| FUNCTION SW | 246 |
| AUDIO | 247 |
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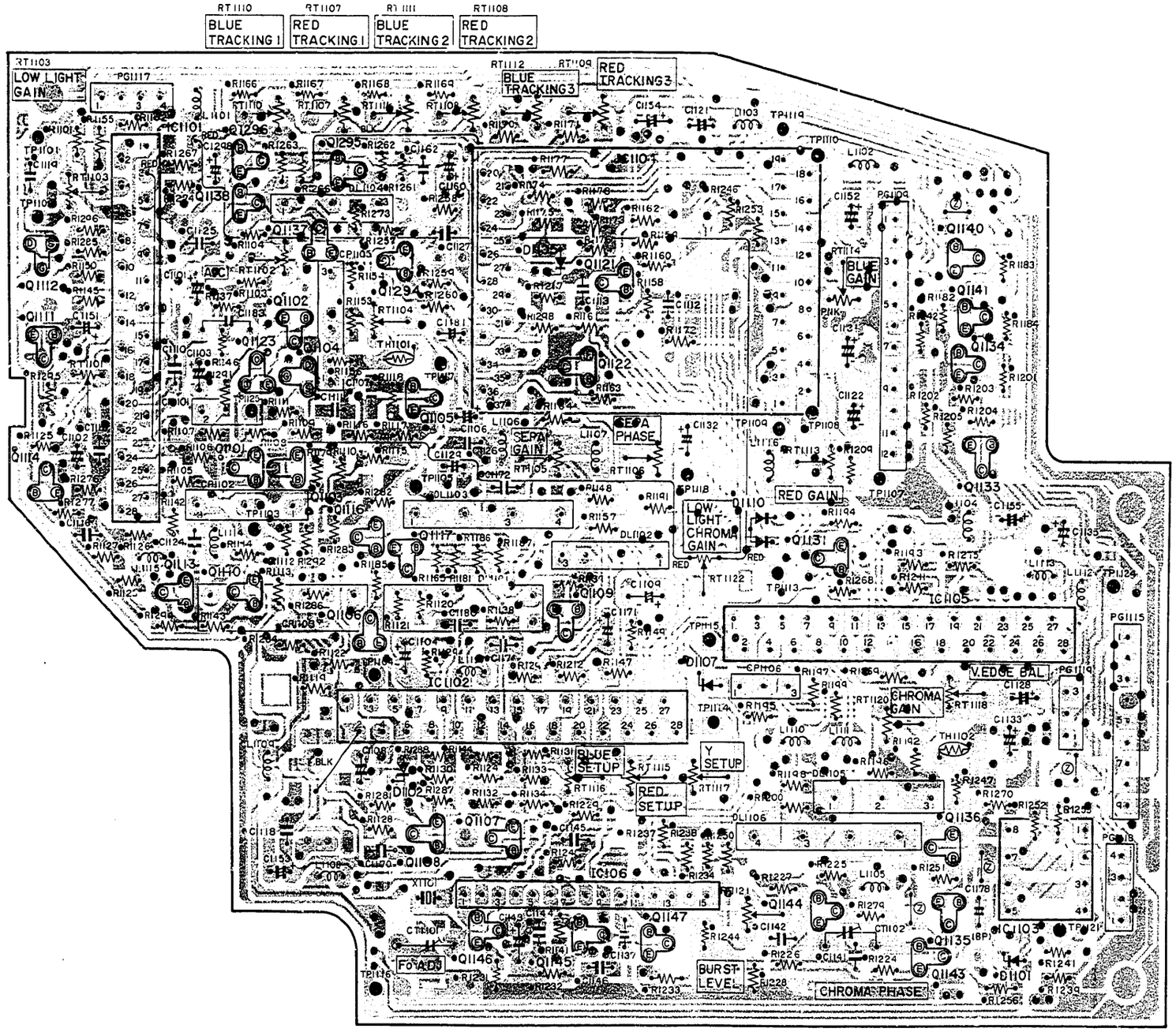
## PROCESS CIRCUIT BOARD




※ NOTE: MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS(CHIP) COMPONENT.

PROCESS 191 192 PROCESS

### IC1101

| | | | |
|---|---|---|---|
| 1 | - | 15 | 3.3 |
| 2 | 1.9 | 16 | 2.1 |
| 3 | 1.2 | 17 | - |
| 4 | 1.4 | 18 | 2.3 |
| 5 | 1.8 | 19 | 1.8 |
| 6 | 0 | 20 | 2.2 |
| 7 | 2.0 | 21 | 2.8 |
| 8 | 1.9 | 22 | 0 |
| 9 | 1.9 | 23 | 1.3 |
| 10 | - | 24 | 5.1 |
| 11 | 8.1 | 25 | - |
| 12 | 0.4 | 26 | 2.1 |
| 13 | 0.1 | 27 | 2.2 |
| 14 | 1.9 | 28 | 2.0 |

### PG1109

| | |
|---|---|
| 1 | AUTO WHITE BAL SW |
| 2 | COLOR SHADE RED |
| 3 | COLOR SHADE BLUE |
| 4 | WINDOW WEIGHT |
| 5 | DARK SHADE HORIZ. |
| 6 | DARK SHADE VERT |
| 7 | C. STBY 8V |
| 8 | INHIBIT |
| 9 | GND |
| 10 | VIDEO |
| 11 | WHT BAL RESET |
| 12 | C. STBY 5V |

To REGULATOR CN1509

### PG1115

| | |
|---|---|
| 1 | CP 2 |
| 2 | VP |
| 3 | BEAM DETECT |
| 4 | WHD |
| 5 | GND |
| 6 | TARGET VOLTAGE |
| 7 | ABO |
| 8 | REF 1.8V |
| 9 | C5V |

To DEFLECTION CN1315

### PG1117

| | |
|---|---|
| 1 | TARGET VOLTAGE |
| 2 | C. STBY 8V |
| 3 | PRE VIDEO |
| 4 | GND |

To PRE AMP CN1017

### PG1118

| | |
|---|---|
| 4 | IRIS DAMP (−) |
| 3 | IRIS DAMP (+) |
| 2 | IRIS DRIVE (−) |
| 1 | IRIS DRIVE (+) |

To LENS BLOCK (IRIS MOTOR) CN1018

### PG1119

| | |
|---|---|
| 1 | GAIN UP |
| 2 | GND |
| 3 | COLOR BAL |

To CAMERA SWITCH CN1619

● Through hole

Soldered Side

Parts Side

### Q1108

| | |
|---|---|
| B | 2.7 |
| C | 3.3 |
| E | 3.3 |

### Q1117

| | |
|---|---|
| B | 3.2 |
| C | 2.9 |
| E | 2.6 |

### Q1101

| | |
|---|---|
| B | 2.2 |
| C | 4.5 |
| E | 1.6 |

### Q1102

| | |
|---|---|
| B | 4.5 |
| C | 1.7 |
| E | 5.1 |

### Q1109

| | |
|---|---|
| B | 2.9 |
| C | 5.1 |
| E | 2.3 |

### Q1110

| | |
|---|---|
| B | 2.0 |
| C | 0 |
| E | 2.7 |

### Q1121

| | |
|---|---|
| B | 1.9 |
| C | 4.9 |
| E | 1.2 |

### Q1122

| | |
|---|---|
| B | 3.7 |
| C | 5.1 |
| E | 3.1 |

### Q1137

| | |
|---|---|
| B | 0.6 |
| C | 0 |
| E | 1.3 |

### Q1138

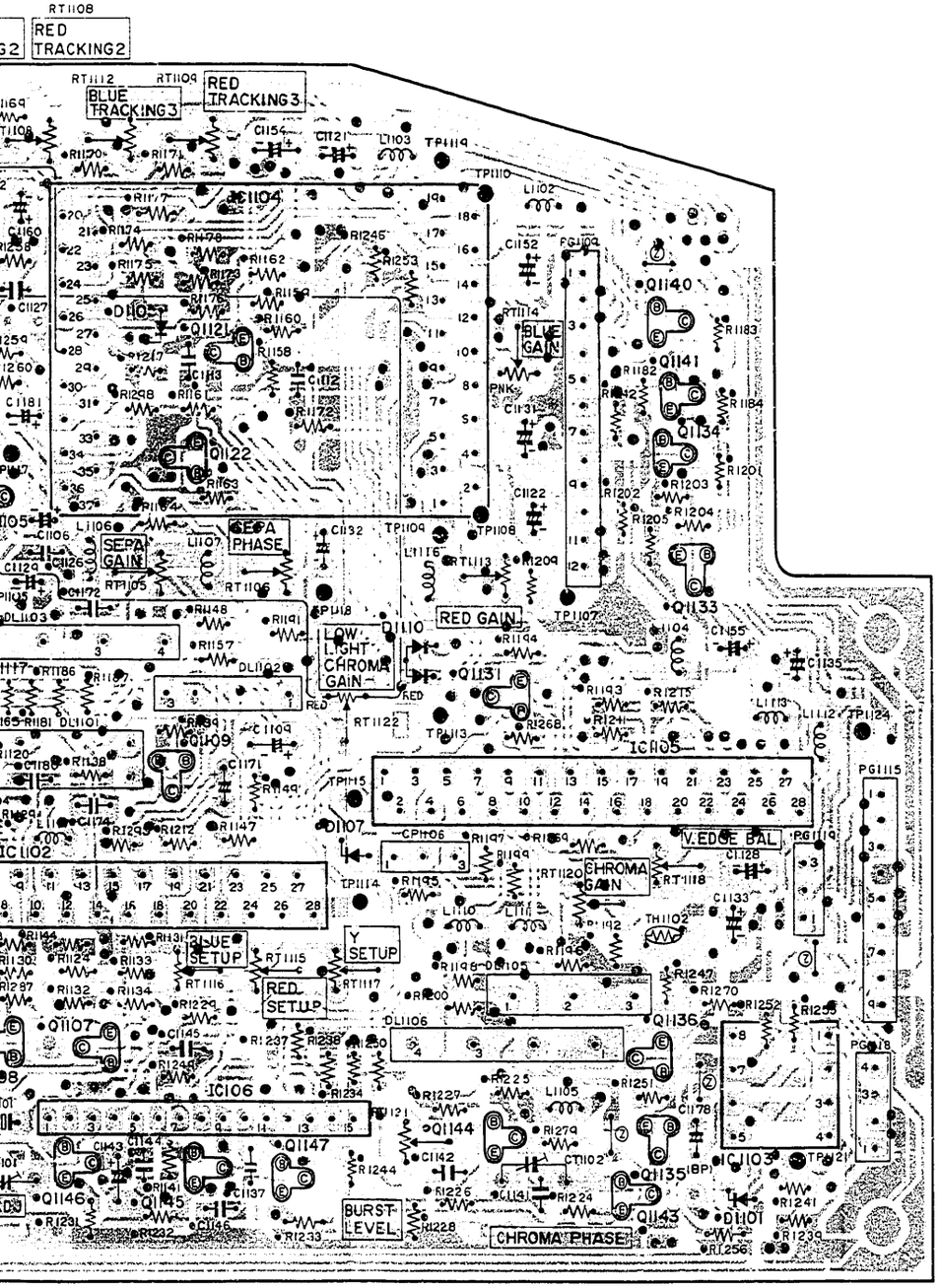
| | |
|---|---|
| B | 3.3 |
| C | 0 |
| E | 2.3 |

### Q1147

| | |
|---|---|
| B | 0.2 |
| C | 5.1 |
| E | 0.2 |

### Q1294

| | |
|---|---|
| B | 1.9 |
| C | 2.3 |
| E | 2.6 |




PROCESS P.C.B

PG1109

| | |
|---|---|
| 1 | AUTO WHITE BAL SW |
| 2 | COLOR SHADE RED |
| 3 | COLOR SHADE BLUE |
| 4 | WINDOW WEIGHT |
| 5 | DARK SHADE HORIZ. |
| 6 | DARK SHADE VERT. |
| 7 | C. STBY 8V |
| 8 | INHIBIT |
| 9 | GND |
| 10 | VIDEO |
| 11 | WHT BAL RESET |
| 12 | C. STBY 5V |

To REGULATOR CN1509

PG1115

| | |
|---|---|
| 1 | CP 2 |
| 2 | VP |
| 3 | BEAM DETECT |
| 4 | WHD |
| 5 | GND |
| 6 | TARGET VOLTAGE |
| 7 | ABO |
| 8 | REF 1.8V |
| 9 | C5V |

To DEFLECTION CN1315

PG1117

| | |
|---|---|
| 1 | TARGET VOLTAGE |
| 2 | C. STBY 8V |
| 3 | PRE VIDEO |
| 4 | GND |

To PRE AMP CN1017

PG1118

| | |
|---|---|
| 4 | IRIS DAMP (−) |
| 3 | IRIS DAMP (+) |
| 2 | IRIS DRIVE (−) |
| 1 | IRIS DRIVE (+) |

To LENS BLOCK (IRIS MOTOR) CN1018

PG1119

| | |
|---|---|
| 1 | GAIN UP |
| 2 | GND |
| 3 | COLOR BAL |

To CAMERA SWITCH CN1619

● Through hole

Soldered Side

Parts Side

IC1101

| | | | |
|---|---|---|---|
| 1 | - | 15 | 3.3 |
| 2 | 1.9 | 16 | 2.1 |
| 3 | 1.2 | 17 | - |
| 4 | 1.4 | 18 | 2.3 |
| 5 | 1.8 | 19 | 1.8 |
| 6 | 0 | 20 | 2.2 |
| 7 | 2.0 | 21 | 2.8 |
| 8 | 1.9 | 22 | 0 |
| 9 | 1.9 | 23 | 1.3 |
| 10 | - | 24 | 5.1 |
| 11 | 8.1 | 25 | - |
| 12 | 0.4 | 26 | 2.1 |
| 13 | 0.1 | 27 | 2.2 |
| 14 | 1.9 | 28 | 2.0 |

IC1102

| | | | |
|---|---|---|---|
| 1 | 1.1 | 15 | 0.4 |
| 2 | 2.5 | 16 | 0.1 |
| 3 | 1.0 | 17 | 0.7 |
| 4 | 0.6 | 18 | 1.1 |
| 5 | 1.2 | 19 | - |
| 6 | 0.2 | 20 | 2.1 |
| 7 | 0 | 21 | 2.1 |
| 8 | 1.9 | 22 | 1.4 |
| 9 | 3.3 | 23 | - |
| 10 | 1.8 | 24 | 1.3 |
| 11 | 2.3 | 25 | 1.1 |
| 12 | 2.3 | 26 | - |
| 13 | 2.5 | 27 | 1.0 |
| 14 | 5.1 | 28 | 1.3 |

IC1103

| | |
|---|---|
| 1 | - |
| 2 | - |
| 3 | 0 |
| 4 | 0 |
| 5 | 1.9 |
| 6 | 1.9 |
| 7 | 1.4 |
| 8 | 5.1 |

IC1104

| | | | |
|---|---|---|---|
| 1 | 1.1 | 20 | C |
| 2 | 2.3 | 21 | 0.1 |
| 3 | 1.9 | 22 | 1.9 |
| 4 | 2.8 | 23 | 1.9 |
| 5 | 1.3 | 24 | 1.9 |
| 6 | 1.1 | 25 | 1.9 |
| 7 | - | 26 | 1.9 |
| 8 | - | 27 | 5.1 |
| 9 | 0 | 28 | 1.3 |
| 10 | 0 | 29 | - |
| 11 | 1.4 | 30 | 2.2 |
| 12 | 1.8 | 31 | 2.0 |
| 13 | 0.3 | 32 | 1.8 |
| 14 | 0.4 | 33 | 1.9 |
| 15 | 0.1 | 34 | 1.9 |
| 16 | 2.9 | 35 | 5.0 |
| 17 | 0.4 | 36 | 1.9 |
| 18 | 1.0 | 37 | 3.1 |
| 19 | 1.9 | | |

IC1105

| | | | |
|---|---|---|---|
| 1 | 3.2 | 15 | 1.6 |
| 2 | 2.0 | 16 | 1.4 |
| 3 | 0 | 17 | 2.2 |
| 4 | 0 | 18 | 0.1 |
| 5 | 0.2 | 19 | 5.1 |
| 6 | 2.8 | 20 | 3.8 |
| 7 | 0 | 21 | 1.3 |
| 8 | 0.6 | 22 | 0 |
| 9 | 0 | 23 | 0.3 |
| 10 | 3.6 | 24 | 1.4 |
| 11 | 0.1 | 25 | 2.3 |
| 12 | 2.2 | 26 | 1.3 |
| 13 | 0 | 27 | 2.3 |
| 14 | 2.3 | 28 | 0.2 |

Q1108

| | |
|---|---|
| B | 2.7 |
| C | 3.3 |
| E | 3.3 |

Q1117

| | |
|---|---|
| B | 3.2 |
| C | 2.9 |
| E | 2.6 |

Q1136

| | |
|---|---|
| B | 2.2 |
| C | 5.1 |
| E | 1.6 |

Q1146

| | |
|---|---|
| B | 0.1 |
| C | 5.1 |
| E | 0.7 |

Q1101

| | |
|---|---|
| B | 2.2 |
| C | 4.5 |
| E | 1.6 |

Q1102

| | |
|---|---|
| B | 4.5 |
| C | 1.7 |
| E | 5.1 |

Q1103

| | |
|---|---|
| B | 1.6 |
| C | 5.1 |
| E | 1.0 |

Q1104

| | |
|---|---|
| G | 2.2 |
| D | 1.6 |
| S | 1.7 |

Q1105

| | |
|---|---|
| B | 0.5 |
| C | 0 |
| E | 1.1 |

Q1106

| | |
|---|---|
| B | 0.4 |
| C | 0 |
| E | 1.0 |

Q1107

| | |
|---|---|
| B | 3.3 |
| C | 0 |
| E | 3.3 |

IC1106

| | |
|---|---|
| 1 | 0.1 |
| 2 | 2.6 |
| 3 | 2.5 |
| 4 | 0 |
| 5 | 5.1 |
| 6 | 0.7 |
| 7 | 0.4 |
| 8 | 0.1 |
| 9 | 0.1 |
| 10 | 0.2 |
| 11 | 0.4 |
| 12 | 0.6 |
| 13 | 3.8 |
| 14 | 4.5 |
| 15 | 0.2 |

Q1109

| | |
|---|---|
| B | 2.9 |
| C | 5.1 |
| E | 2.3 |

Q1110

| | |
|---|---|
| B | 2.0 |
| C | 0 |
| E | 2.7 |

Q1111

| | |
|---|---|
| B | 1.2 |
| C | 0 |
| E | 1.8 |

Q1112

| | |
|---|---|
| G | 0.2 |
| D | 1.9 |
| S | 2.1 |

Q1113

| | |
|---|---|
| B | 2.0 |
| C | 5.1 |
| E | 1.3 |

Q1114

| | |
|---|---|
| B | 1.4 |
| C | 0 |
| E | 2.1 |

Q1116

| | |
|---|---|
| B | 1.1 |
| C | 2.9 |
| E | 0.5 |

Q1121

| | |
|---|---|
| B | 1.9 |
| C | 4.9 |
| E | 1.2 |

Q1122

| | |
|---|---|
| B | 3.7 |
| C | 5.1 |
| E | 3.1 |

Q1123

| | |
|---|---|
| B | 1.7 |
| C | 0 |
| E | 2.3 |

Q1131

| | |
|---|---|
| B | 1.3 |
| C | 1.6 |
| E | 0.7 |

Q1133

| | |
|---|---|
| B | 3.8 |
| C | 5.1 |
| E | 3.2 |

Q1134

| | |
|---|---|
| B | 2.3 |
| C | 0 |
| E | 2.9 |

Q1135

| | |
|---|---|
| B | 1.4 |
| C | 0 |
| E | 2.2 |

Q1137

| | |
|---|---|
| B | 0.6 |
| C | 0 |
| E | 1.3 |

Q1138

| | |
|---|---|
| B | 3.9 |
| C | 0 |
| E | 2.3 |

Q1140

| | |
|---|---|
| B | 0.3 |
| C | 2.0 |
| E | 0 |

Q1141

| | |
|---|---|
| B | 0.2 |
| C | 5.1 |
| E | 1.9 |

Q1143

| | |
|---|---|
| B | 3.7 |
| C | 5.1 |
| E | 3.1 |

Q1144

| | |
|---|---|
| B | 2.0 |
| C | 3.7 |
| E | 1.4 |

Q1145

| | |
|---|---|
| B | 0.7 |
| C | 5.1 |
| E | 0.7 |

Q1147

| | |
|---|---|
| B | 0.2 |
| C | 5.1 |
| E | 0.2 |

Q1294

| | |
|---|---|
| B | 1.9 |
| C | 2.3 |
| E | 2.6 |

Q1295

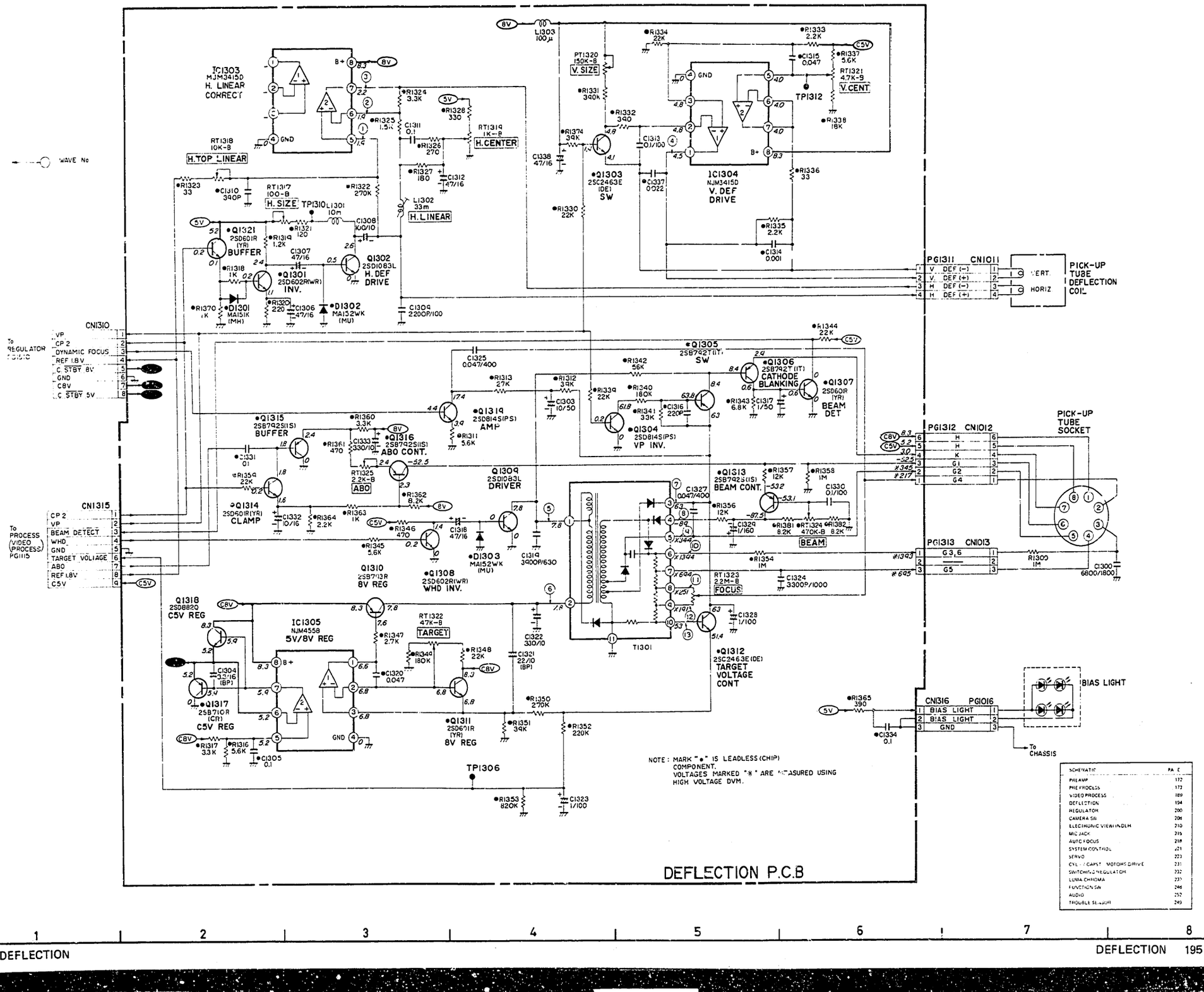
| | |
|---|---|
| B | 4.2 |
| C | 5.1 |
| E | 3.6 |

Q1296

| | |
|---|---|
| B | 1.2 |
| C | 4.2 |
| E | 1.8 |

※ NOTE: MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS(CHIP) COMPONENT.

## DEFLECTION SCHEMATIC DIAGRAM



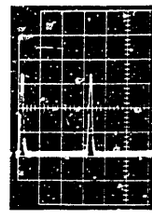

| SCHEMATIC | PAGE |
|---|---|
| PREAMP | 172 |
| PREPROCESS | 173 |
| VIDEO PROCESS | 189 |
| DEFLECTION | 194 |
| REGULATOR | 200 |
| CAMERA SW | 206 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 218 |
| SYSTEM CONTROL | 221 |
| SERVO | 223 |
| CYL. CAPST. MOTORS DRIVE | 231 |
| SWITCHING REGULATOR | 232 |
| LUMA CHROMA | 237 |
| FUNCTION SW | 246 |
| AUDIO | 252 |
| TROUBLE SENSOR | 249 |





DEFLECTION WAVE

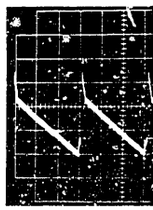
1-A IC1303-5
0.1V/20µsec

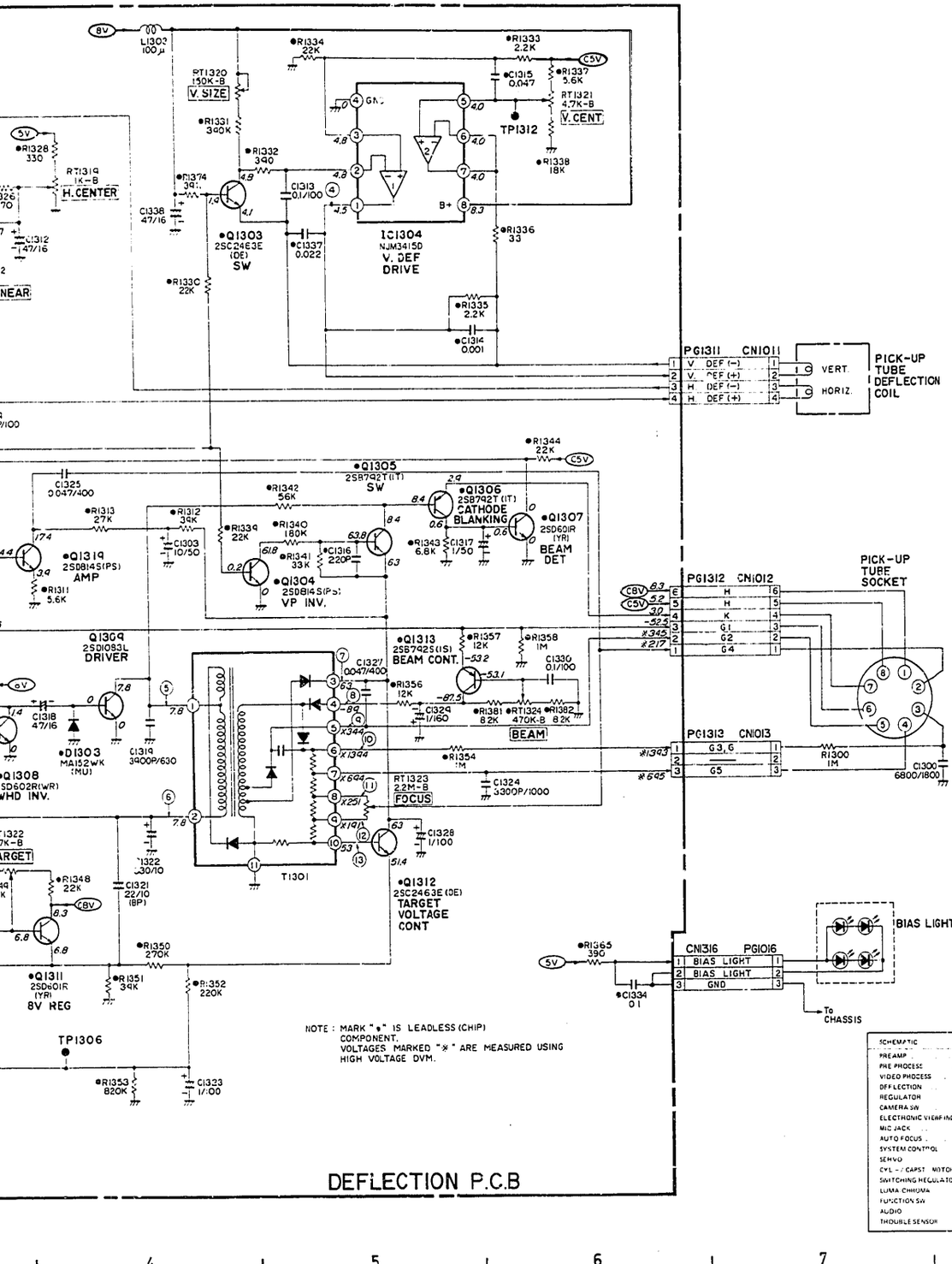


4-A IC1304-1
2V/5msec.c

7-A T1301-3
0.1V/5msec

10-A T1301-6
2V/20µsec.c





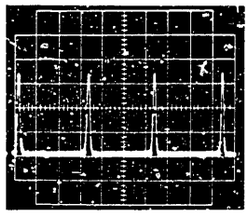

NOTE : MARK "*" IS LEADLESS (CHIP) COMPONENT.
VOLTAGES MARKED "*" ARE MEASURED USING HIGH VOLTAGE DVM.

| SCHEMATIC | PAGE |
|---|---|
| PREAMP | 172 |
| PRE PROCESS | 172 |
| VIDEO PROCESS | 189 |
| DEFLECTION | 194 |
| REGULATOR | 200 |
| CAMERA SW | 208 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 216 |
| SYSTEM CONTROL | 221 |
| SERVO | 223 |
| CYL. / CAPST. MOTORS DRIVE | 231 |
| SWITCHING REGULATOR | 232 |
| LUMA CHROMA | 233 |
| FUNCTION SW | 246 |
| AUDIO | 252 |
| TROUBLE SENSOR | 249 |

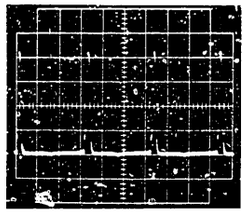
DEFLECTION P.C.B

## DEFLECTION WAVEFORMS

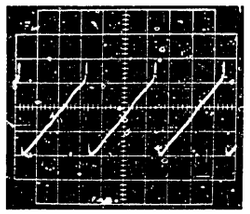
1-A IC1303-5
0.1V/20µsec.cm



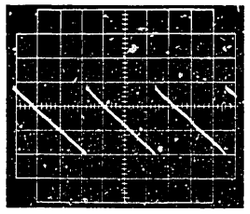
2-A IC1303-6
0.1V/20µsec.cm



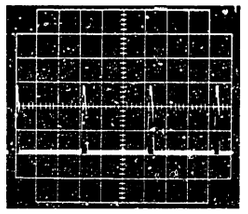
3-A IC1303-7
0.5V/20µsec.cm



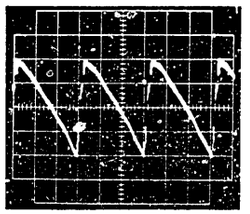
4-A IC1304-1
2V/5msec.cm



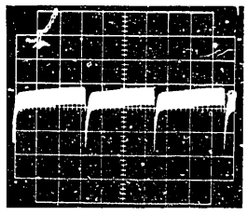
5-A T1301-1
50V/20µsec.cm



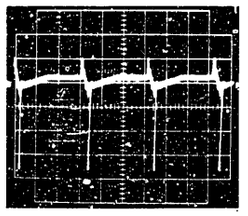
6-A T1301-2
50mV/20µsec.cm



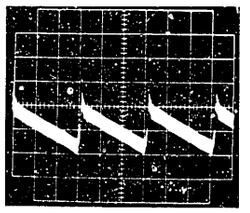
7-A T1301-3
0.1V/5msec.cm



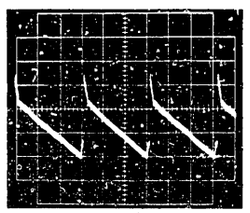
8-A T1301-4
20V/20µsec.cm



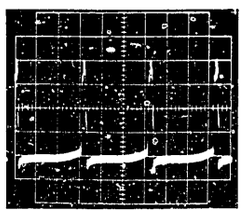
9-A T1301-5
0.2V/20µsec.cm



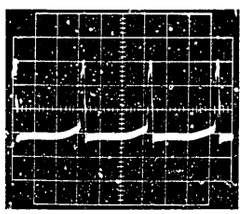
10-A T1301-6
2V/20µsec.cm



11-A T1301-8
2V/20µsec.cm

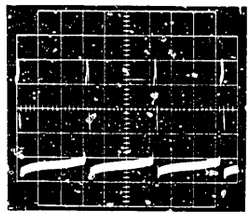


12-A T1301-9
2V/20µsec.cm



## DEFLECTION WAVEFORMS

13-A T1301-10
1V/20μsec.cm



## DEFLECTION CIRCUIT BOARD

| Q1301 | |
|---|---|
| B | 0.2 |
| C | 2.4 |
| E | 1.1 |

| Q1302 | |
|---|---|
| B | 0.5 |
| C | 2.6 |
| E | 0 |

| Q1303 | |
|---|---|
| B | 1.9 |
| C | 4.8 |
| E | 4.1 |

| Q1304 | |
|---|---|
| B | 0.2 |
| C | 618 |
| E | 0 |

| Q1308 | |
|---|---|
| B | 0.2 |
| C | 1.4 |
| E | 0 |

| Q1309 | |
|---|---|
| B | 0 |
| C | 7.8 |
| E | 0 |

| Q1310 | |
|---|---|
| B | 7.6 |
| C | 7.8 |
| E | 8.3 |

| Q1311 | |
|---|---|
| B | 6.8 |
| C | 8.3 |
| E | 6.8 |

| Q1315 | |
|---|---|
| B | 1.8 |
| C | 0 |
| E | 2.4 |

| Q1316 | |
|---|---|
| B | 2.3 |
| C | -52.5 |
| E | 2.4 |

| Q1319 | |
|---|---|
| B | 4.4 |
| C | 17.4 |
| E | 3.9 |

| Q1321 | |
|---|---|
| B | 0.2 |
| C | 5.2 |
| E | 0.1 |

| Q1305 | |
|---|---|
| B | 63.8 |
| C | 8.4 |
| E | 6.3 |

| Q1306 | |
|---|---|
| B | 8.4 |
| C | 0.6 |
| E | 2.9 |

| Q1307 | |
|---|---|
| B | 0.6 |
| C | 0 |
| E | 0 |

### IC1304

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| 4.5 | 4.8 | 4.8 | 0 |
| 8 | 7 | 6 | 5 |
| 8.3 | 4.0 | 4.0 | 4.0 |

| Q1312 | |
|---|---|
| B | 53 |
| C | 63 |
| E | 51.4 |

| Q1313 | |
|---|---|
| B | -53.1 |
| C | -87.5 |
| E | -53.2 |

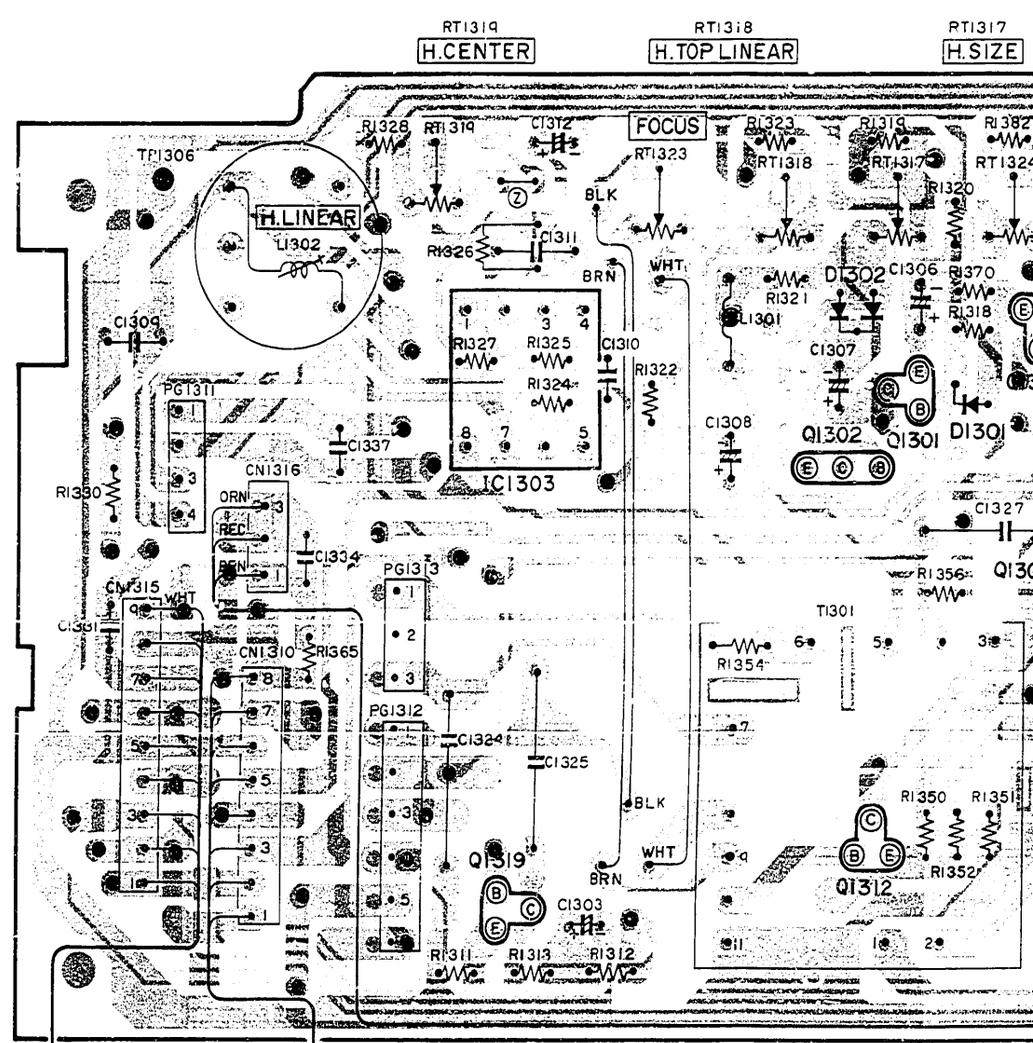
| Q1314 | |
|---|---|
| B | 0.2 |
| C | 1.8 |
| E | 1.6 |

### IC1305

| 5 | 6 | 7 | 8 |
|---|---|---|---|
| 5.2 | 5.2 | 5.9 | 8.3 |
| 4 | 3 | 2 | 1 |
| 0 | 6.8 | 6.8 | 6.6 |

### IC1303

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| - | - | - | 0 |
| 8 | 7 | 6 | 5 |
| 8.3 | 2.2 | 1.9 | 1.9 |




### CN1315

| | | |
|---|---|---|
| WHT | 9 | C5V |
| GRY | 8 | REF 1.8 V |
| VLT | 7 | ABO |
| BLU | 6 | TARGET VOLTAGE |
| PNK | 5 | GND |
| YEL | 4 | WHD |
| ORN | 3 | BEAM DETECT |
| RED | 2 | VP |
| BRN | 1 | CP2 |

To PROCESS (VIDEO PROCESS) PG1115

### CN1310

| | | |
|---|---|---|
| GRY | 8 | C. STBY 5V |
| VLT | 7 | C8V |
| BLU | 6 | GND |
| PNK | 5 | C. STBY 8V |
| YEL | 4 | REF 1.8V |
| ORN | 3 | DYNAMIC FOCUS |
| RED | 2 | CP2 |
| BRN | 1 | VP |

To REGULATOR PG1510

### PG1311

| | |
|---|---|
| 1 | V. DEF(-) |
| 2 | V. DEF(+) |
| 3 | H. DEF(-) |
| 4 | H. DEF(+) |

To PICK-UP TUBE DEFLECTION COIL CN1011

### PG1312

| | | |
|---|---|---|
| 1 | G4 | 2 |
| 2 | G2 | 5 |
| 3 | G1 | 6 |
| 4 | K | 7 |
| 5 | H | 8 |
| 6 | H | 1 |

To PICK-UP TUBE SOCKET VIA CN1012

CUIT BOARD

Q1303

| | |
|---|---|
| B | 1.9 |
| C | 4.8 |
| E | 4.1 |

Q1304

| | |
|---|---|
| B | 0.2 |
| C | 61.8 |
| E | 0 |

Q1310

| | |
|---|---|
| B | 7.6 |
| C | 7.8 |
| E | 8.3 |

Q1311

| | |
|---|---|
| B | 6.8 |
| C | 8.3 |
| E | 6.8 |

Q1319

| | |
|---|---|
| B | 4.4 |
| C | 17.4 |
| E | 3.9 |

Q1321

| | |
|---|---|
| B | 0.2 |
| C | 5.2 |
| E | 0.1 |

Q1306

| | |
|---|---|
| B | 8.4 |
| C | 0.6 |
| E | 2.9 |

Q1307

| | |
|---|---|
| B | 0.6 |
| C | 0 |
| E | 0 |

Q1313

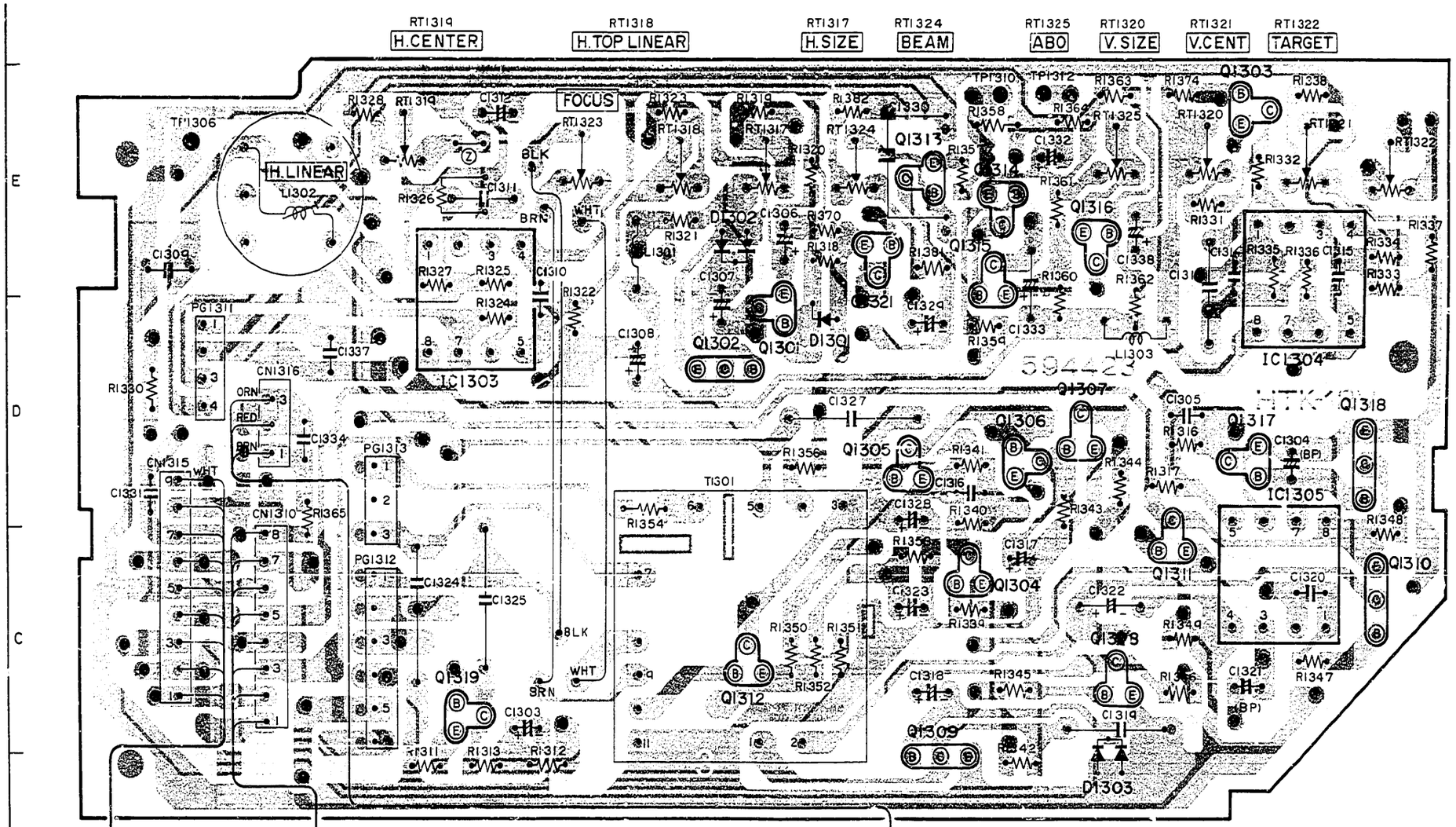
| | |
|---|---|
| B | -53.1 |
| C | -87.5 |
| E | -53.2 |

Q1314

| | |
|---|---|
| B | 0.2 |
| C | 1.8 |
| E | 1.6 |

IC1303

| | | | |
|---|---|---|---|
| | 2 | 3 | 4 |
| | - | - | 0 |
| | 7 | 6 | 5 |
| | 2.2 | 1.9 | 1.9 |




DEFLECTION P.C.B

CN1315

| | | |
|---|---|---|
| WHT | 9 | C5V |
| GRY | 8 | REF 1.8V |
| VLT | 7 | ABO |
| BLU | 6 | TARGET VOLTAGE |
| PNK | 5 | GND |
| YEL | 4 | WHD |
| ORN | 3 | BEAM DETECT |
| RED | 2 | VP |
| BRN | 1 | CP2 |

To PROCESS (VIDEO PROCESS) PG1115

CN1310

| | | |
|---|---|---|
| GRY | 8 | C. $\overline{\text{STBY}}$ 5V |
| VLT | 7 | C8V |
| BLU | 6 | GND |
| PNK | 5 | C $\overline{\text{STBY}}$ 8V |
| YEL | 4 | REF 1.8V |
| ORN | 3 | DYNAMIC FOCUS |
| RED | 2 | CP2 |
| BRN | 1 | VP |

To REGULATOR PG1510

PG1311

| | |
|---|---|
| 1 | V. DEF(−) |
| 2 | V. DEF(+) |
| 3 | H. DEF(−) |
| 4 | H. DEF(+) |

To PICK-UP TUBE DEFLECTION COIL CN1011

PG1312

| | | |
|---|---|---|
| 1 | G4 | 2 |
| 2 | G2 | 5 |
| 3 | G1 | 6 |
| 4 | K | 7 |
| 5 | H | 8 |
| 6 | H | 1 |

To PICK-UP TUBE SOCKET VIA CN1012

PG1313

| | | |
|---|---|---|
| 1 | G3.6 | 3 |
| 2 | —— | — |
| 3 | G5 | 4 |

To PICK-UP TUBE SOCKET VIA CN1013

CN1316

| | | |
|---|---|---|
| ORN | 3 | GND |
| RED | 2 | BIAS LIGHT |
| BRN | 1 | BIAS LIGHT |

To BIAS LIGHT PG1016

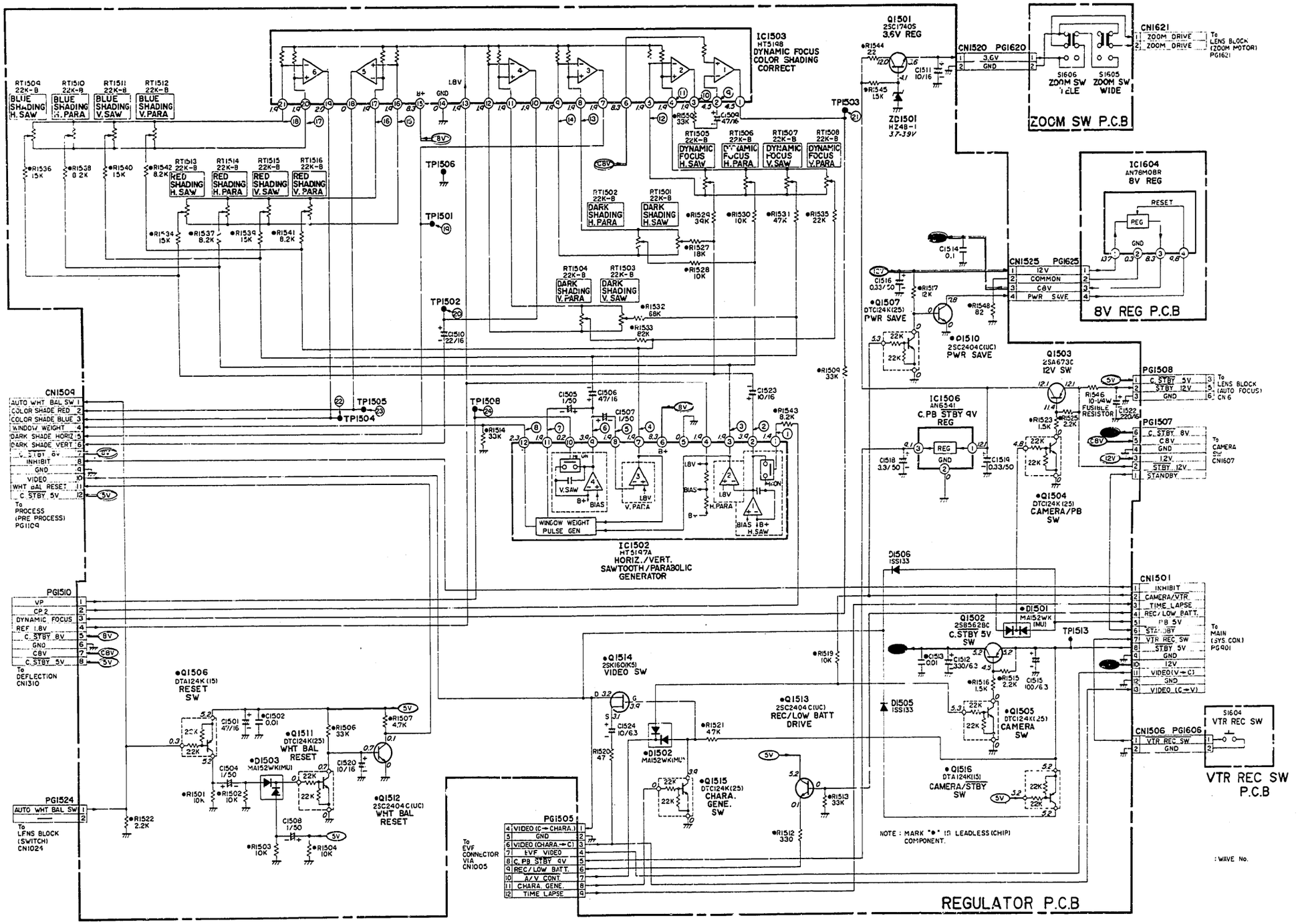
※ NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.

Soldered Side

Parts Side

● Through hole

## REGULATOR SCHEMATIC DIAGRAM

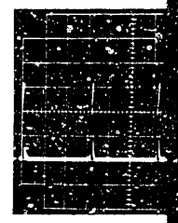




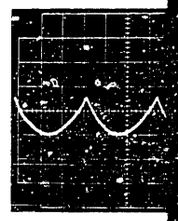



## REGULATOR WAVEFO

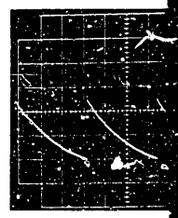
1-A IC1502-1
1V/20μsec.



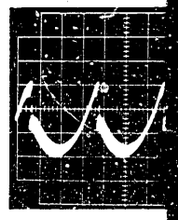
4-A IC1502-7
0.5V/5msec.

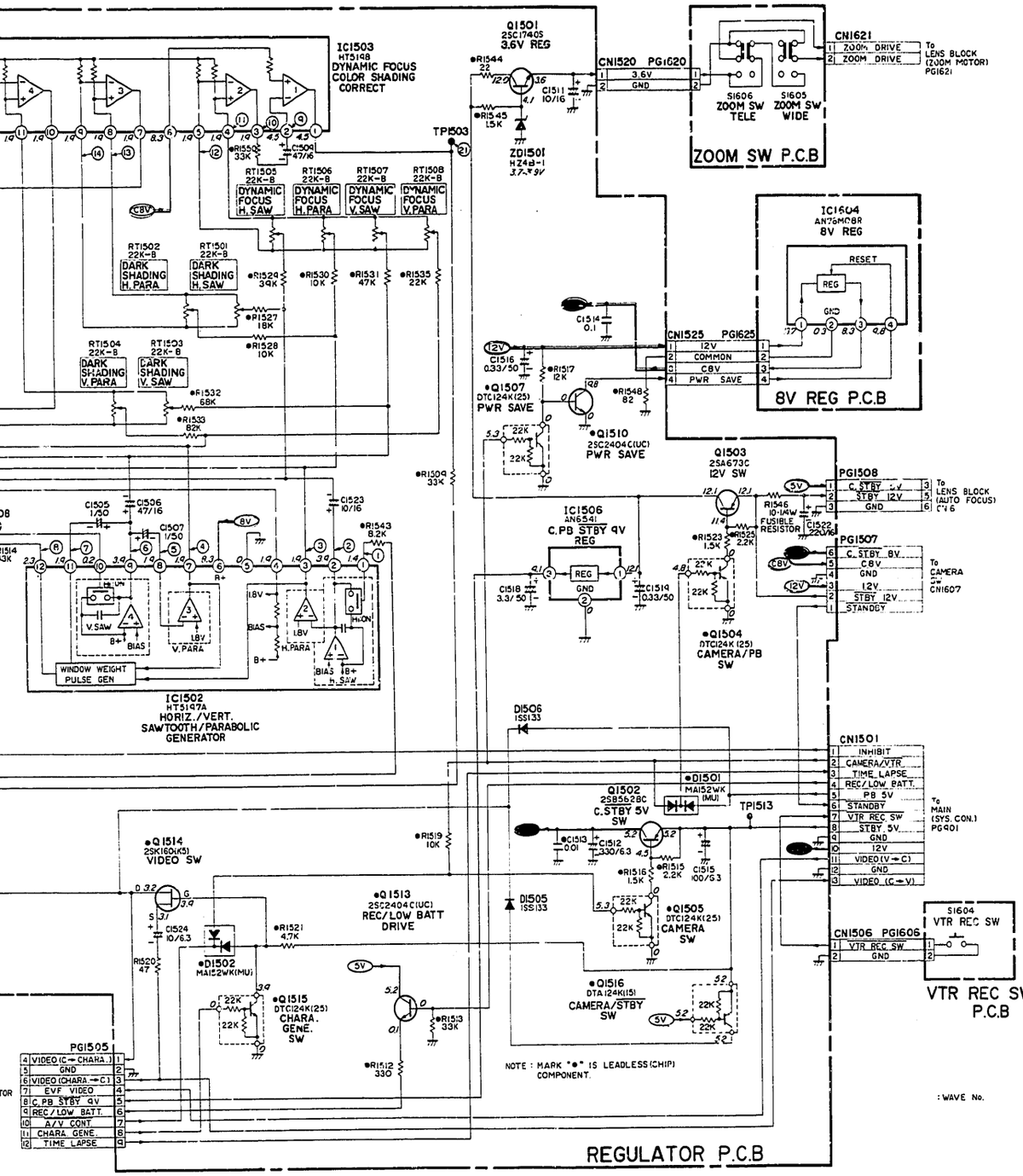


7-A IC1502-11
0.5V/5msec.



10-A IC1503-3
50mV/20μsec



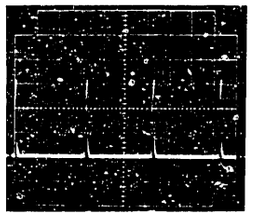



4 5 6 7 8

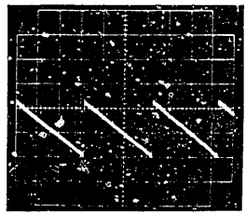


## REGULATOR WAVEFORMS

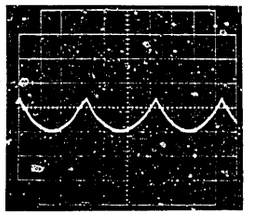
1-A IC1502-1
1V/20μsec.cm



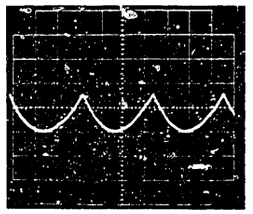
2-A IC1502-2
0.5V/20μsec.cm



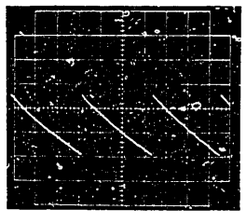
3-A IC1502-3
0.5V/20μsec.cm



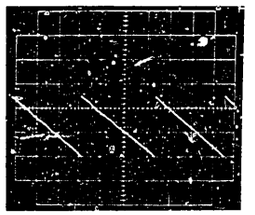
4-A IC1502-7
0.5V/5msec.cm



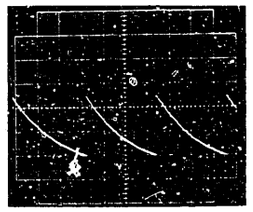
5-A IC1502-8
0.5V/5msec.cm



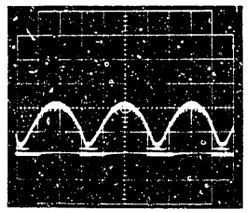
6-A IC1502-9
0.5V/5msec.cm



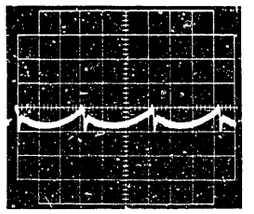
7-A IC1502-11
0.5V/5msec.cm



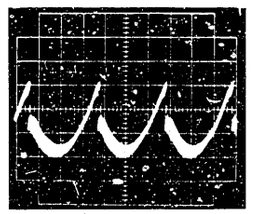
8-A IC1502-12
2V/20μsec.cm



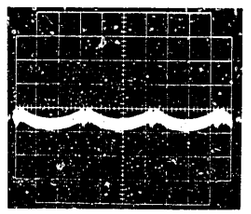
9-A IC1503-2
50mV/20μsec.cm



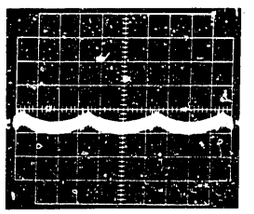
10-A IC1503-3
50mV/20μsec.cm



11-A IC1503-4
50mV/20μsec.cm

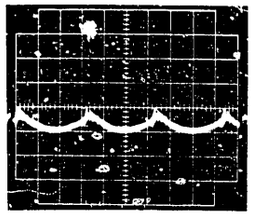


12-A IC1503-5
50mV/20μsec.cm

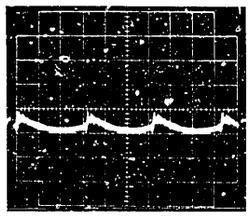


**REGULATOR WAVEFORMS**

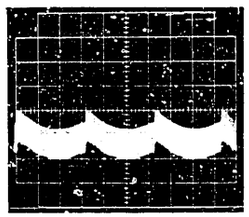
13-A IC1503-8
50mV/20$\mu$sec.cm



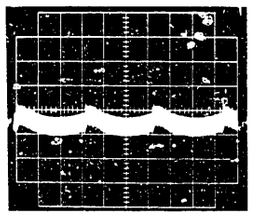
14-A IC1503-9
50mV/5msec.cm



15-A IC1503-16
50mV/20$\mu$sec.cm

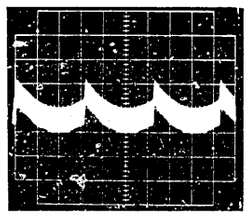


16-A IC1503-17
50mV/20$\mu$sec.cm

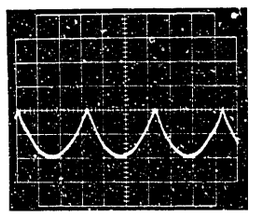


17-A IC1503-20
50mV/20$\mu$sec.cm

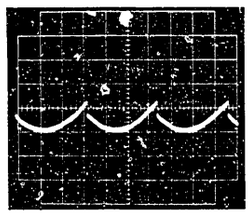
18-A IC1503-21
50mV/20$\mu$sec.cm



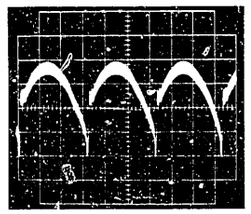
19-A TP1501
0.1V/20$\mu$sec.cm



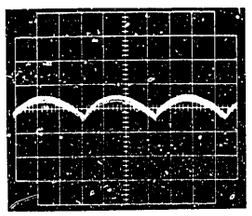
20-A TP1502
50mV/5msec.cm



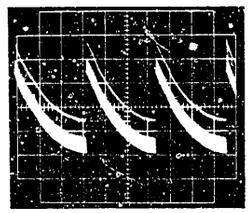
21-A TP1503
0.2V/20$\mu$sec.cm



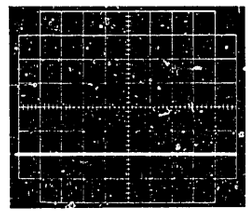
22-A TP1504
0.5V/5msec.cm



23-A TP1505
0.2V/5msec.cm



24-A TP1508
0.2V/5msec.cm



## REGULATOR CIRCUIT BOARD

Q1501

| | |
|---|---|
| B | 4.1 |
| C | 12.0 |
| E | 3.6 |

Q1502

| | |
|---|---|
| B | 4.5 |
| C | 5.2 |
| E | 5.2 |

Q1503

| | |
|---|---|
| B | 11.4 |
| C | 12.1 |
| E | 12.1 |

Q1504

| | |
|---|---|
| B | 4.8 |
| C | 0 |
| E | 0 |

Q1505

| | |
|---|---|
| B | 5.3 |
| C | 0 |
| E | 0 |

Q1506

| | |
|---|---|
| B | 0.3 |
| C | 5.2 |
| E | 5.2 |

Q1507

| | |
|---|---|
| B | 5.3 |
| C | 0 |
| E | 0 |

Q1510

| | |
|---|---|
| B | 0 |
| C | 9.8 |
| E | 0 |

Q1511

| | |
|---|---|
| B | 0 |
| C | 0.7 |
| E | 0 |

Q1512

| | |
|---|---|
| B | 0.7 |
| C | 0.1 |
| E | 0 |

Q1513

| | |
|---|---|
| B | 0 |
| C | 5.2 |
| E | 0.1 |

Q1514

| | |
|---|---|
| B | 3.2 |
| C | 3.9 |
| E | 3.1 |

Q1515

| | |
|---|---|
| B | 0 |
| C | 3.9 |
| E | 0 |

Q1516

| | |
|---|---|
| B | 5.2 |
| C | 5.2 |
| E | 5.2 |

IC1506

| 1 | 2 | 3 |
|---|---|---|
| 12.1 | 0 | 9.1 |

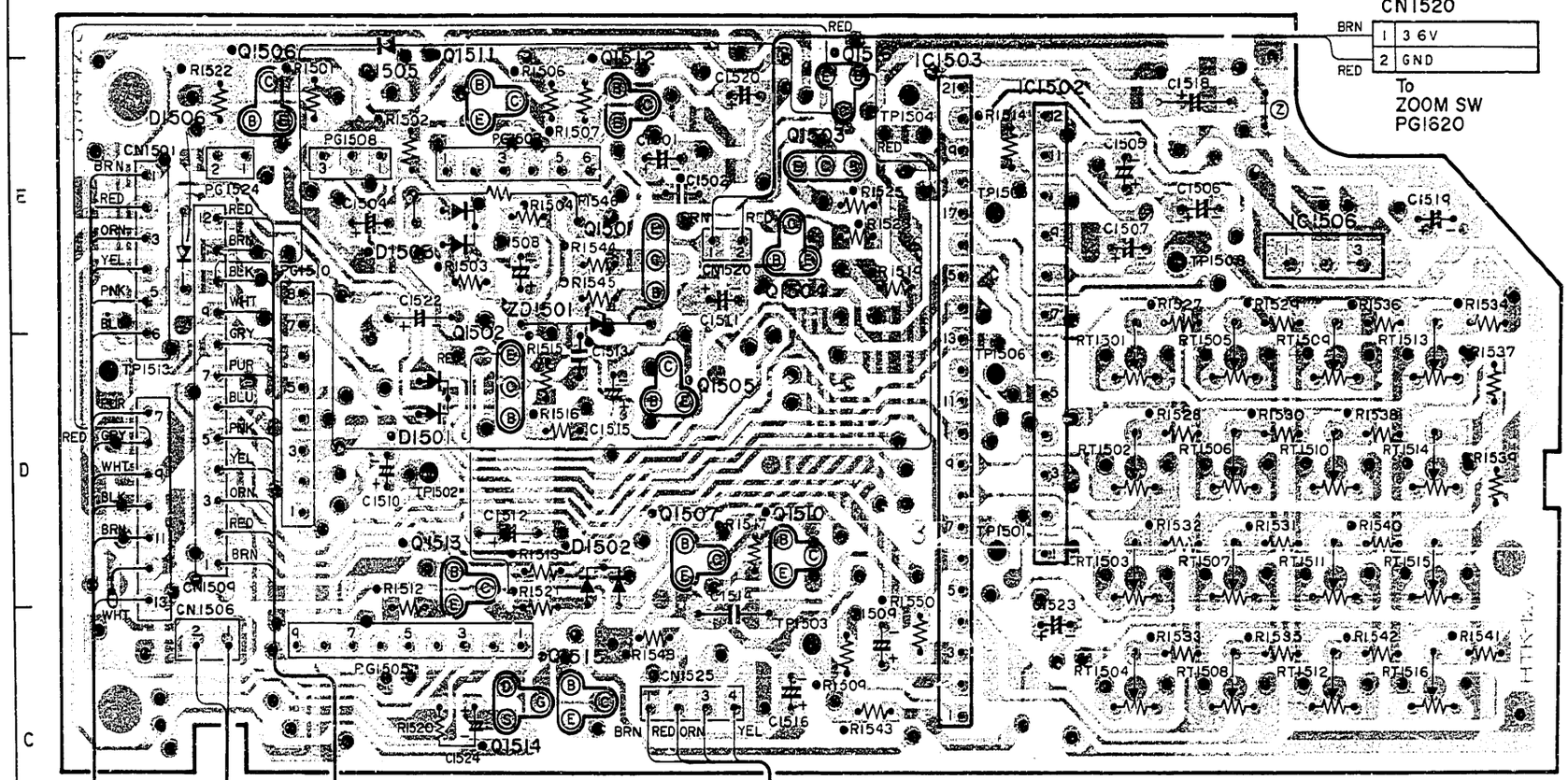
IC503

| | |
|---|---|
| 21 | 1.9 |
| 20 | 1.9 |
| 19 | 2.0 |
| 18 | 0 |
| 17 | 1.9 |
| 16 | 1.9 |
| 15 | 8.3 |
| 14 | 0 |
| 13 | 1.9 |
| 12 | 1.9 |
| 11 | 1.9 |
| 10 | 1.9 |
| 9 | 1.9 |
| 8 | 1.9 |
| 7 | 1.9 |
| 6 | 8.3 |
| 5 | 1.9 |
| 4 | 1.9 |
| 3 | 1.9 |
| 2 | 4.5 |
| 1 | 4.5 |

IC502

| | |
|---|---|
| 12 | 2.3 |
| 11 | 1.9 |
| 10 | 0.2 |
| 9 | 3.9 |
| 8 | 1.9 |
| 7 | 1.9 |
| 6 | 8.3 |
| 5 | 0 |
| 4 | 1.9 |
| 3 | 1.9 |
| 2 | 3.9 |
| 1 | 1.4 |


| SCHEMATIC | PAGE |
|---|---|
| PREAMP | 172 |
| PRE PROCESS | 173 |
| VIDEO PROCESS | 189 |
| DEFLECTION | 194 |
| REGULATOR | 200 |
| CAMERA SW | 208 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 216 |
| SYSTEM CONTROL | 221 |
| SERVO | 224 |
| CYL -/ CAPS -MOTORS DRIVE | 231 |
| SWITCHING REGULATOR | 232 |
| LUMA/CHROMA | 233 |
| FUNCTION SW | 246 |
| AUDIO | 252 |
| TROUBLE SENSOR | 249 |




CN1520

| | | |
|---|---|---|
| BRN | 1 | 3.6V |
| RED | 2 | GND |

To ZOOM SW PG1620

PG1505

| | | |
|---|---|---|
| 1 | VIDEO(C→CHAR.) | 4 |
| 2 | GND | 5 |
| 3 | VIDEO(CHAR.→C) | 6 |
| 4 | EVF VIDEO | 7 |
| 5 | C.PB STBY 9V | 8 |
| 6 | REC/LOW BATT. | 9 |
| 7 | A/V CONT. | 10 |
| 8 | CHAR. GENE | 11 |
| 9 | TIME LAPSE | 12 |

To EVF CONNECTOR VIA CN1005

PG1507

| | | |
|---|---|---|
| 6 | C.STBY 8V | |
| 5 | C8V | |
| 4 | GND | |
| 3 | 12V | |
| 2 | STBY 12V | |
| 1 | STANDBY | |

To CAMERA SW CN1607

PG1508

| | | |
|---|---|---|
| 1 | C.STBY 5V | 3 |
| 2 | STBY 12V | 5 |
| 3 | GND | 6 |

To LENS BLOCK (AUTO FOCUS) CN6

PG1524

| | | |
|---|---|---|
| 1 | AUTO WHT BAL SW | |
| 2 | —— | |

To LENS BLOCK (SWITCH) CN1024

CN1501

| | | |
|---|---|---|
| BRN | 1 | INHIBIT |
| RED | 2 | CAMERA/VTR |
| ORN | 3 | TIME LAPSE |
| YEL | 4 | REC/LOW BATT. |
| PNK | 5 | PB 5V |
| BLU | 6 | STANDBY |
| PUR | 7 | VTR REC SW |
| GRY | 8 | STBY 5V |
| WHT | 9 | GND |
| BLK | 10 | 12V |
| BRN | 11 | VIDEO(V→C) |
| WHT | 12 | GND |
| | 13 | VIDEO(C→V) |

To MAIN (SYSCON.) PG901

PG1510

| | | |
|---|---|---|
| 1 | VP | |
| 2 | CP2 | |
| 3 | DYNAMIC FOCUS | |
| 4 | REF 1.8V | |
| 5 | C.STBY 8V | |
| 6 | GND | |
| 7 | C8V | |
| 8 | C.STBY 5V | |

To DEFLECTION CN1310

CN1509

| | | |
|---|---|---|
| BRN | 1 | AUTO WHT BAL SW |
| RED | 2 | COLOR SHADE RED |
| ORN | 3 | COLOR SHADE BLUE |
| YEL | 4 | WINDOW WEIGHT |
| PNK | 5 | DARK SHADE HORIZ. |
| BLU | 6 | DARK SHADE VERT. |
| PUR | 7 | C.STBY 8V |
| GRY | 8 | INHIBIT |
| WHT | 9 | GND |
| BLK | 10 | VIDEO |
| BRN | 11 | WHT BAL RESET |
| RED | 12 | C.STBY 5V |

To PROCESS (PRE PROCESS) PG1109

CN1525

| | | |
|---|---|---|
| BRN | 1 | 12V |
| RED | 2 | COMMON |
| ORN | 3 | C8V |
| YEL | 4 | PWR SAVE |

To 8V REG PG1625

CN1506

| | | |
|---|---|---|
| 1 | VTR REC SW | |
| 2 | GND | |

To VCR REC SW PG1606

REGULATOR P.C.B

| | | | |
|---|---|---|---|
| RT1501 DARK SHADING H.SAW | RT1505 DYNAMIC FOCUS H.SAW | RT1509 BLUE SHADING H.SAW | RT1513 RED SHADING H.SAW |
| RT1502 DARK SHADING H.PARA | RT1506 DYNAMIC FOCUS H.PARA | RT1510 BLUE SHADING H.PARA | RT1514 RED SHADING H.PARA |
| RT1503 DARK SHADING V.SAW | RT1507 DYNAMIC FOCUS V.SAW | RT1511 BLUE SHADING V.SAW | RT1515 RED SHADING V.SAW |
| RT1504 DARK SHADING V.PARA | RT1508 DYNAMIC FOCUS V.PARA | RT1512 BLUE SHADING V.PARA | RT1516 RED SHADING V.PARA |

Soldered Side

Parts Side

● Through hole

※ NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS(CHIP) COMPONENT.

1 2 3 4 5 6 7 8

REGULATOR 205 206 REGULATOR

ZOOM SW CIRC

CN

| | | |
|---|---|---|
| 2 | ZO | |
| 1 | ZO | |

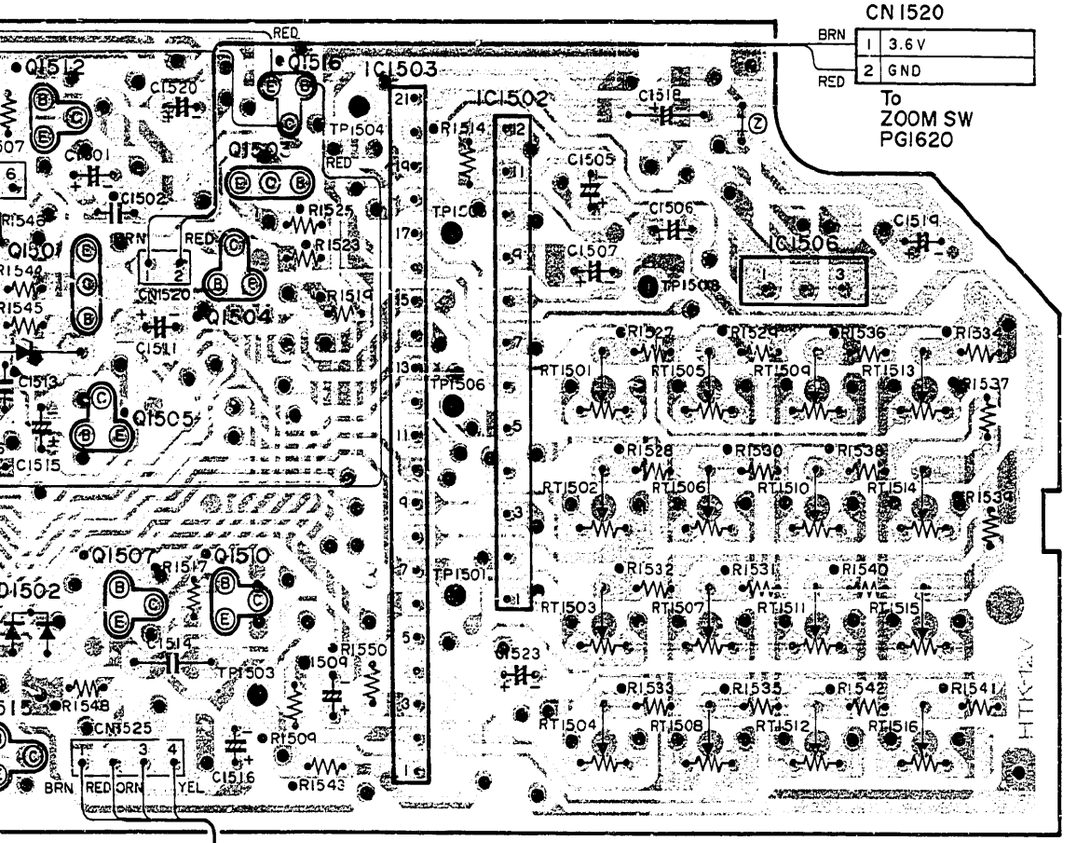
To LEN (ZOO PGI

8V REG CIRCU

IC1604

PG1625

| | |
|---|---|
| 1 | 12V |
| 2 | COMMON |
| 3 | C8V |
| 4 | PWR SAV |




REGULATOR P.C.B

PG1505

| | | |
|---|---|---|
| 1 | VIDEO(C → CHAR.) | 4 |
| 2 | GND | 5 |
| 3 | VIDEO(CHAR.→C) | 6 |
| 4 | EVF VIDEO | 7 |
| 5 | C.PB STBY 9V | 8 |
| 6 | REC/LOW BATT. | 9 |
| 7 | A/V CONT. | 10 |
| 8 | CHAR. GENE | 11 |
| 9 | TIME LAPSE | 12 |

To EVF CONNECTOR VIA CN1005

PG1507

| | |
|---|---|
| 6 | C. STBY 8V |
| 5 | C8V |
| 4 | GND |
| 3 | 12V |
| 2 | STBY 12V |
| 1 | STANDBY |

To CAMERA SW CN1607

PG1508

| | | |
|---|---|---|
| 1 | C. STBY 5V | 3 |
| 2 | STBY 12V | 5 |
| 3 | GND | 6 |

To LENS BLOCK (AUTO FOCUS) CN6

PG1524

| | |
|---|---|
| 1 | AUTO WHT BAL SW |
| 2 | — |

To LENS BLOCK (SWITCH) CN1024

CN1509

| | |
|---|---|
| 1 | AUTO WHT BAL SW |
| 2 | COLOR SHADE RED |
| 3 | COLOR SHADE BLUE |
| 4 | WINDOW WEIGHT |
| 5 | DARK SHADE HORIZ. |
| 6 | DARK SHADE VERT. |
| 7 | C.STBY 8V |
| 8 | INHIBIT |
| 9 | GND |
| 10 | VIDEO |
| 11 | WHT BAL RESET |
| 12 | C.STBY 5V |

To PROCESS (PRE PROCESS) PG1109

CN1525

| | | |
|---|---|---|
| BRN | 1 | 12V |
| RED | 2 | COMMON |
| ORN | 3 | C8V |
| YEL | 4 | PWR SAVE |

To 8V REG PG1625

| | | | |
|---|---|---|---|
| RT1501 | DARK SHADING H.SAW | RT1505 | DYNAMIC FOCUS H.SAW |
| RT1509 | BLUE SHADING H.SAW | RT1513 | RED SHADING H.SAW |
| RT1502 | DARK SHADING H.PARA | RT1506 | DYNAMIC FOCUS H.PARA |
| RT1510 | BLUE SHADING H.PARA | RT1514 | RED SHADING H.PARA |
| RT1503 | DARK SHADING V.SAW | RT1507 | DYNAMIC FOCUS V.SAW |
| RT1511 | BLUE SHADING V.SAW | RT1515 | RED SHADING V.SAW |
| RT1504 | DARK SHADING V.PARA | RT1508 | DYNAMIC FOCUS V.PARA |
| RT1512 | BLUE SHADING V.PARA | RT1516 | RED SHADING V.PARA |

Soldered Side

Parts Side

● Through hole

※ NOTE : MARK"Ⓩ" IS LEADLESS JUMPER.
MARK " • " IS LEADLESS(CHIP) COMPONENT.

ZOOM SW CIRCUIT BOARD

CN1621

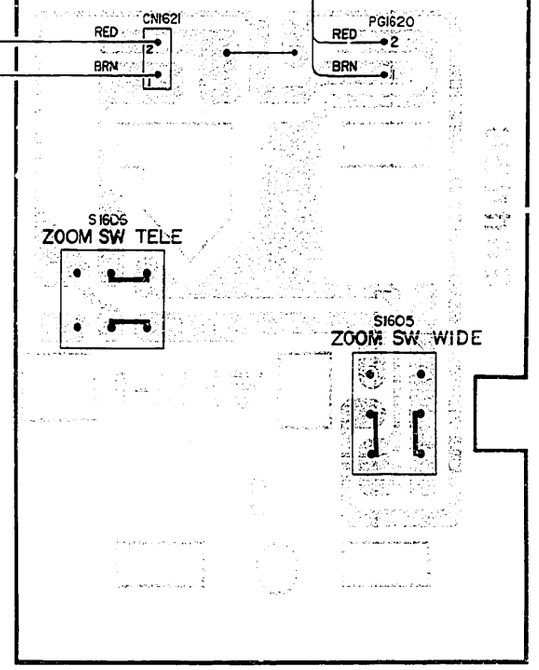
| | |
|---|---|
| 2 | ZOOM DRIVE |
| 1 | ZOOM DRIVE |

To LENS BLOCK (ZOOM MOTOR) PG1621

PG1620

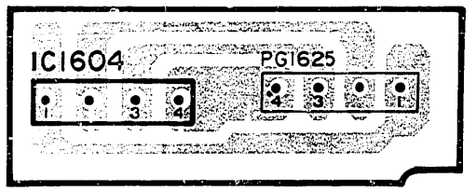
| | |
|---|---|
| 2 | GND |
| 1 | 3.6V |

To REGULATOR CN1520




ZOOM SW P.C.B

8V REG CIRCUIT BOARD




8V REG P.C.B

PG1625

| | |
|---|---|
| 1 | 12V |
| 2 | COMMON |
| 3 | C8V |
| 4 | PWR SAVE |

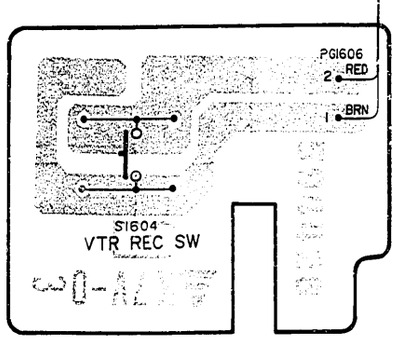
To REGULATOR CN1525

VTR REC SW CIRCUIT BOARD

To REGULATOR CN1506

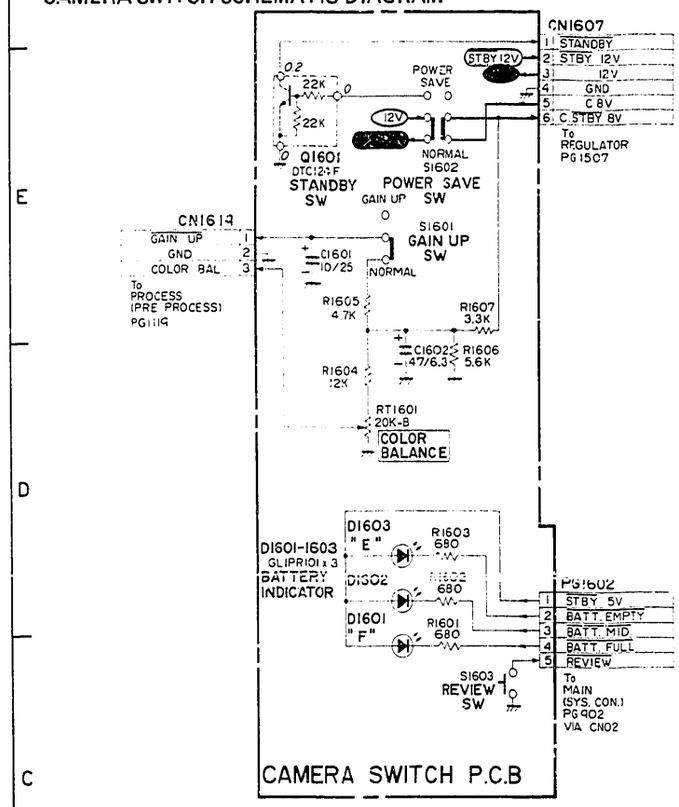
PG1606

| | | |
|---|---|---|
| GND | 2 | RED |
| VTR REC SW | 1 | BRN |

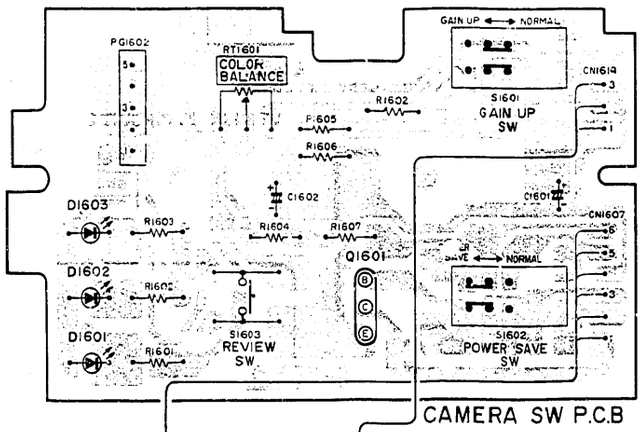



VTR REC SW P.C.B

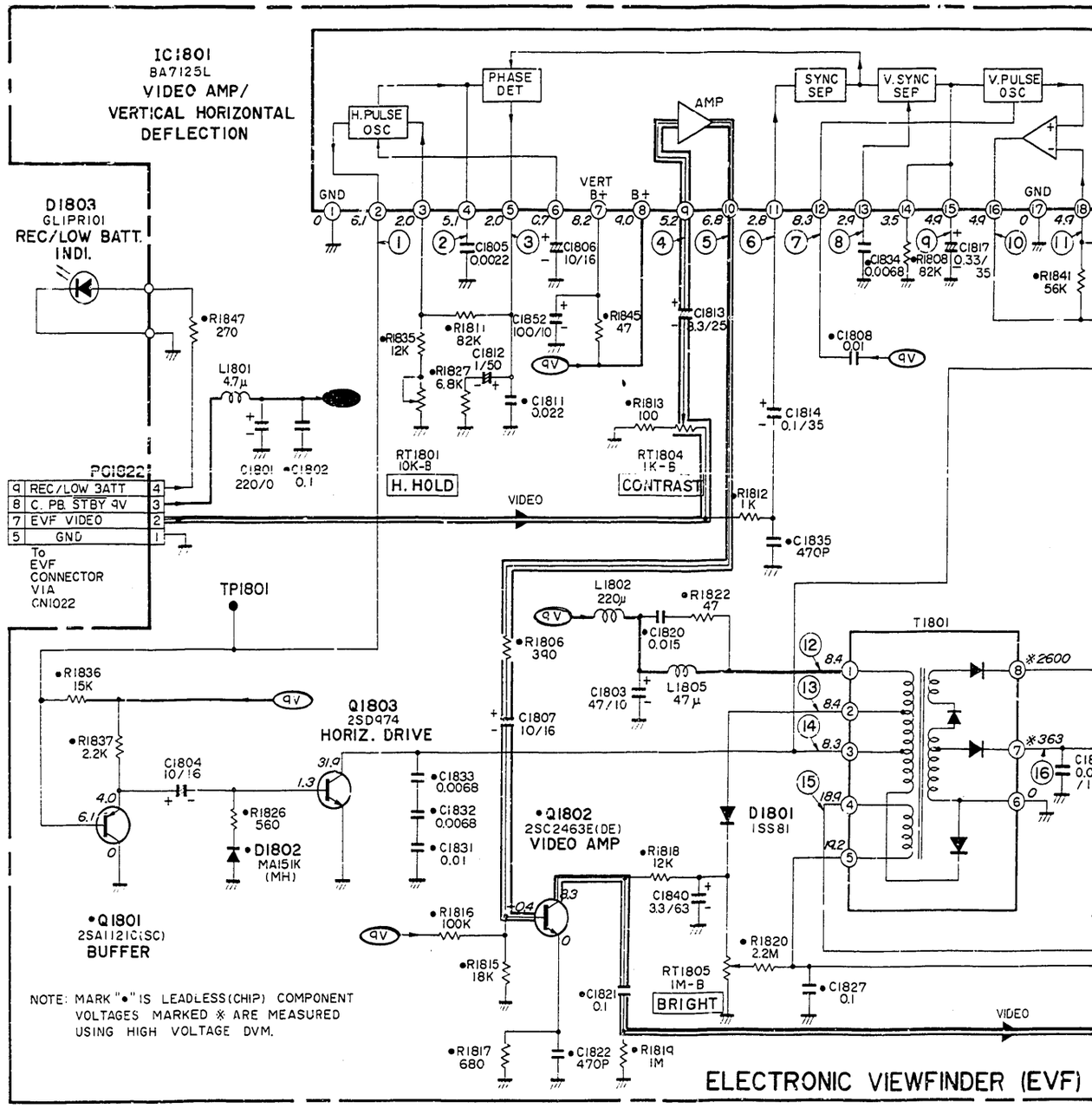
## CAMERA SWITCH SCHEMATIC DIAGRAM




## CAMERA SWITCH CIRCUIT BOARD



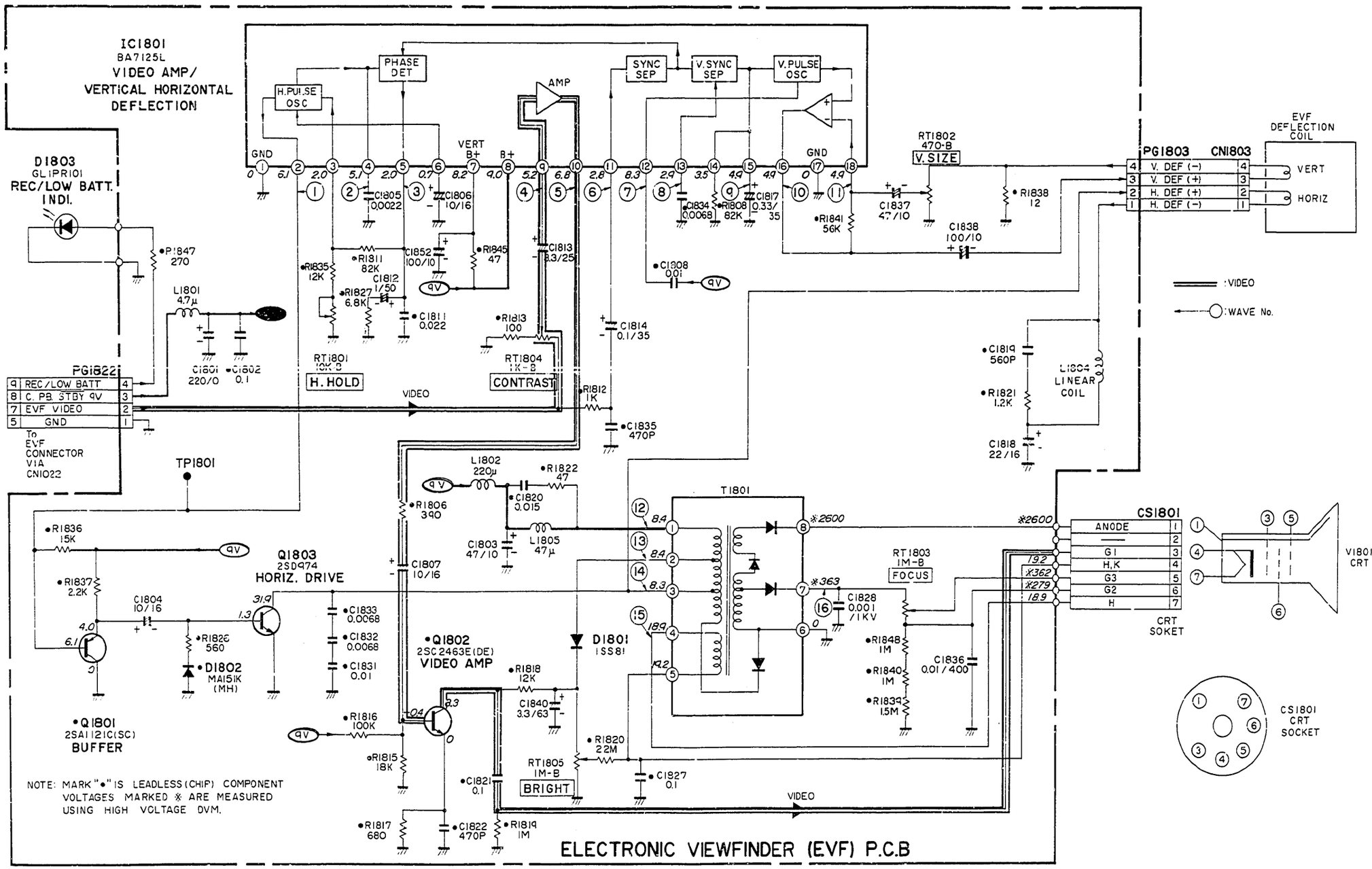

## ELECTRONIC VIEWFINDER (EVF) SCHEMATIC DIAGRAM





| SCHEMATIC | PAGE | SCHEMATIC | PAGE |
|---|---|---|---|
| PREAMP | 172 | SYSTEM CONTROL | 221 |
| PRE PROCESS | 173 | SERVO | 223 |
| VIDEO PROCESS | 189 | CYL CAPST MOTORS DRIVE | 231 |
| DEFLECTION | 194 | SWITCHING REGULATOR | 232 |
| REGULATOR | 200 | LUMA CHROMA | 233 |
| CAMERA SW | 206 | FUNCTION SW | 246 |
| ELECTRONIC VIEWFINDER | 210 | AUDIO | 252 |
| MIC JACK | 215 | TROUBLE SENSOR | 249 |
| AUTO FOCUS | 216 | | |

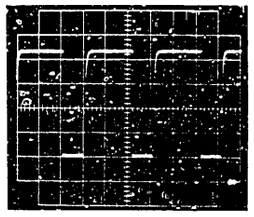
## ELECTRONIC VIEWFINDER (EVF) SCHEMATIC DIAGRAM



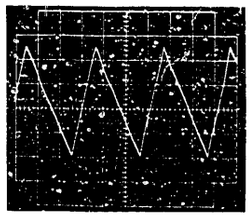

| SCHEMATIC | PAGE | SCHEMATIC | PAGE |
|---|---|---|---|
| PRE AMP | 72 | SYSTEM CONTROL | 221 |
| PRE PROCESS | 173 | SERVO | 223 |
| VIDEO PROCESS | 189 | CYL. / CAPST. MOTORS DRIVE | 231 |
| DEFLECTION | 194 | SWITCHING REGULATOR | 232 |
| REGULATOR | 200 | LUMA CHROMA | 243 |
| CAMERA I/O | 206 | FUNCTION SW | 246 |
| ELECTRONIC VIEWFINDER | 210 | AUDIO | 252 |
| MIC JACK | 215 | SHOUNCE SENSOR | 249 |
| AUTO FOCUS | 216 | | |

## ELECTRONIC VIEWFINDER WAVEFORMS

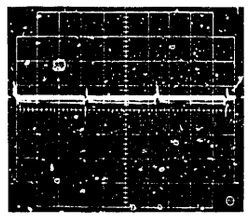
1-A IC1801-2
2V/20$\mu$sec.cm



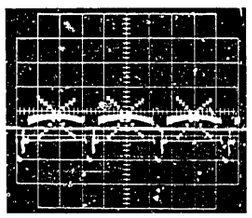
2-A IC1801-4
0.5V/20$\mu$sec.cm



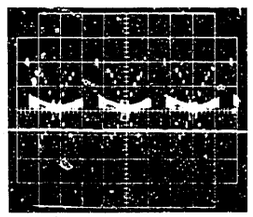
3-A IC1801-5
0.2V/20$\mu$sec.cm



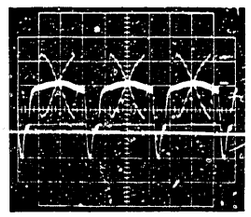
4-A IC1801-9
0.1V/20$\mu$sec.cm



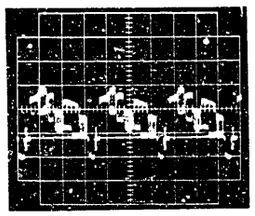
5-A IC1801-10
0.1V/20$\mu$sec.cm



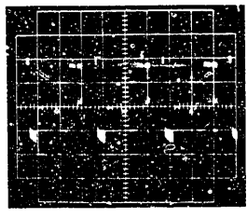
6-A IC1801-11
0.2V/20$\mu$sec.cm



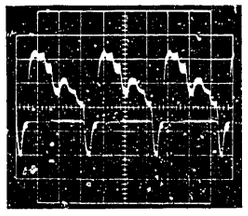
4-B IC1801-9(Color bar)
0.1V/20$\mu$sec.cm



5-B IC1801-10(Color bar)
0.1V/20$\mu$sec.cm

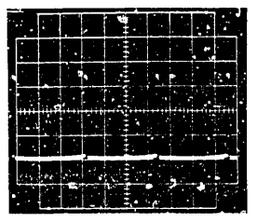


6-B IC1801-11(Color bar)
0.2V/20$\mu$sec.cm

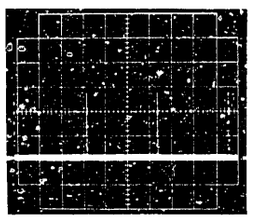


## ELECTRONIC VIEWFINDER WAVEFORMS

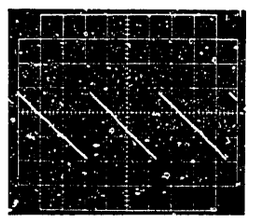
7-A IC1801-12
0.2V/5msec.cm



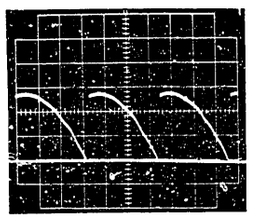
8-A IC1801-13
1V/5msec.cm



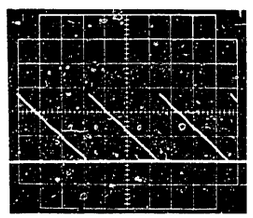
9-A IC1801-15
0.2V/5msec.cm



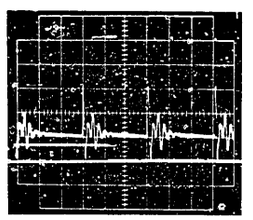
10-A IC1801-16
2V/5msec.cm



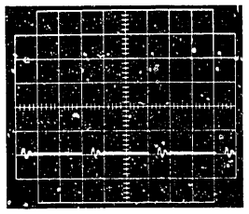
11-A IC1801-18
0.2V/5msec.cm



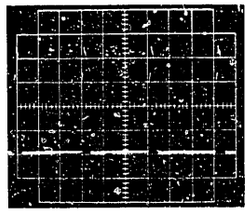
12-A T1801-1
5V/20$\mu$sec.cm



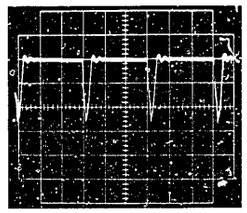
13-A T1801-2
10V/20$\mu$sec.cm



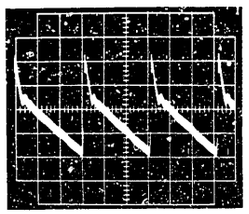
14-A T1801-3
20V/20$\mu$sec.cm

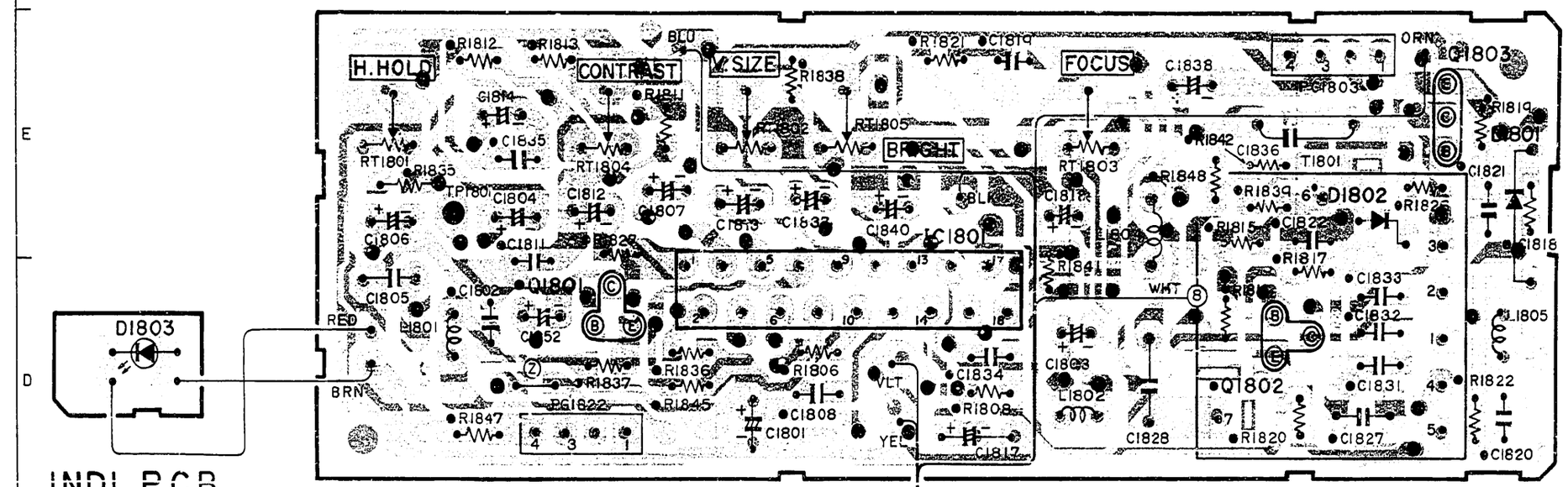


15-A T1801-4
1V/20$\mu$sec.cm



16-A T1801-7
2V/20$\mu$sec.cm






: Soldered Side

: Parts Side

● : Through hole

※ NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS (CHIP) COMPONENT.

**PG1803**

| | | |
|---|---|---|
| 4 | V. DEF (−) | |
| 3 | V. DEF (+) | |
| 2 | H. DEF (+) | |
| 1 | H. DEF (−) | |

To EVF DEFLECTION COIL CN1803

**PG1822**

| | | |
|---|---|---|
| 4 | REC/LOW BATT. | 9 |
| 3 | C. PB $\overline{\text{STBY}}$ 9V | 8 |
| 2 | EVF VIDEO | 7 |
| 1 | GND | 5 |

To EVF CONNECTOR VIA CN1022

**CS1801**

| | | |
|---|---|---|
| WHT | 1 | ANODE |
| | 2 | — |
| ORN | 3 | G1 |
| YEL | 4 | H,K |
| BLK | 5 | G3 |
| BLU | 6 | G2 |
| VLT | 7 | H |

To CRT SOCKET

**IC1801**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 |
| 0 | 2.0 | 2.0 | 8.2 | 5.2 | 2.8 | 2.9 | 4.9 | 0 |
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| 6.1 | 5.1 | 0.7 | 9.0 | 6.8 | 8.3 | 3.5 | 4.9 | 4.9 |

**Q1801**

| | |
|---|---|
| B | 6.1 |
| C | 0 |
| E | 4.0 |

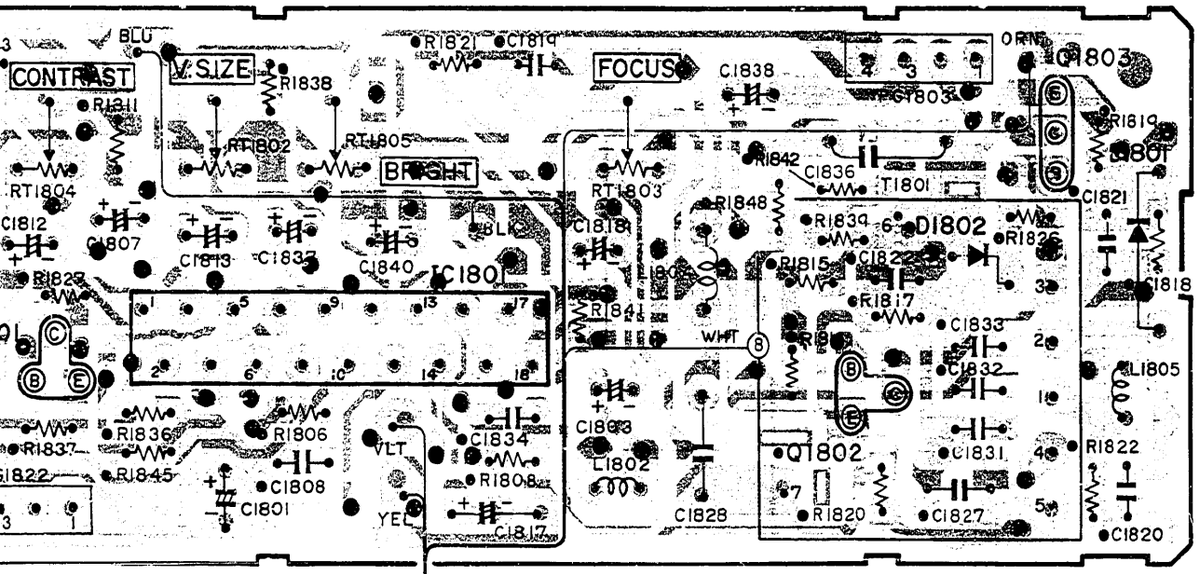
**Q1802**

| | |
|---|---|
| B | -0.4 |
| C | 8.3 |
| E | 0 |

**Q1803**

| | |
|---|---|
| B | 1.3 |
| C | 31.9 |
| E | - |


| SCHEMATIC | PAGE |
|---|---|
| PREAMP | 172 |
| PRE PROCESS | 173 |
| VIDEO PROCESS | 189 |
| DEFLECTION | 194 |
| REGULATOR | 200 |
| CAMERA SW | 204 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 216 |
| SYSTEM CONTROL | 221 |
| SEMVO | 223 |
| PWR CAPST MOTORS DRIVE | 231 |
| SWITCHING REGULATOR | 232 |
| LUMA/CHROMA | 235 |
| FUNCTION SW | 246 |
| AUDIO | 252 |
| TROUBLE SENSOR | 249 |




ELECTRONIC VIEWFINDER P.C.B

: Soldered Side

: Parts Side

● : Through hole

※ NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS (CHIP) COMPONENT.

PG1822

| | | |
|---|---|---|
| 4 | REC/LOW BATT. | 9 |
| 3 | C. PB STBY 9V | 8 |
| 2 | EVF VIDEO | 7 |
| 1 | GND | 5 |

To
EVF
CONNECTOR
VIA
CN1022

CS1801

| | | |
|---|---|---|
| WHT | 1 | ANODE |
| | 2 | — |
| ORN | 3 | G1 |
| YEL | 4 | H,K |
| BLK | 5 | G3 |
| BLU | 6 | G2 |
| VLT | 7 | 1 |

To
CRT
SOCKET

IC1801

| | | | | |
|---|---|---|---|---|
| 9 | 11 | 13 | 15 | 17 |
| 5.2 | 2.8 | 2.9 | 4.9 | 0 |
| 10 | 12 | 14 | 16 | 18 |
| 6.8 | 8.3 | 3.5 | 4.9 | 4.9 |

Q1801

| | |
|---|---|
| B | 6.1 |
| C | 0 |
| E | 4.0 |

Q1802

| | |
|---|---|
| B | -0.4 |
| C | 8.3 |
| E | 0 |

Q1803

| | |
|---|---|
| B | 1.3 |
| C | 31.9 |
| E | - |


| SCHEMATIC | PAGE |
|---|---|
| PREAMP | 172 |
| PRE PROCESS | 173 |
| VIDEO PROCESS | 189 |
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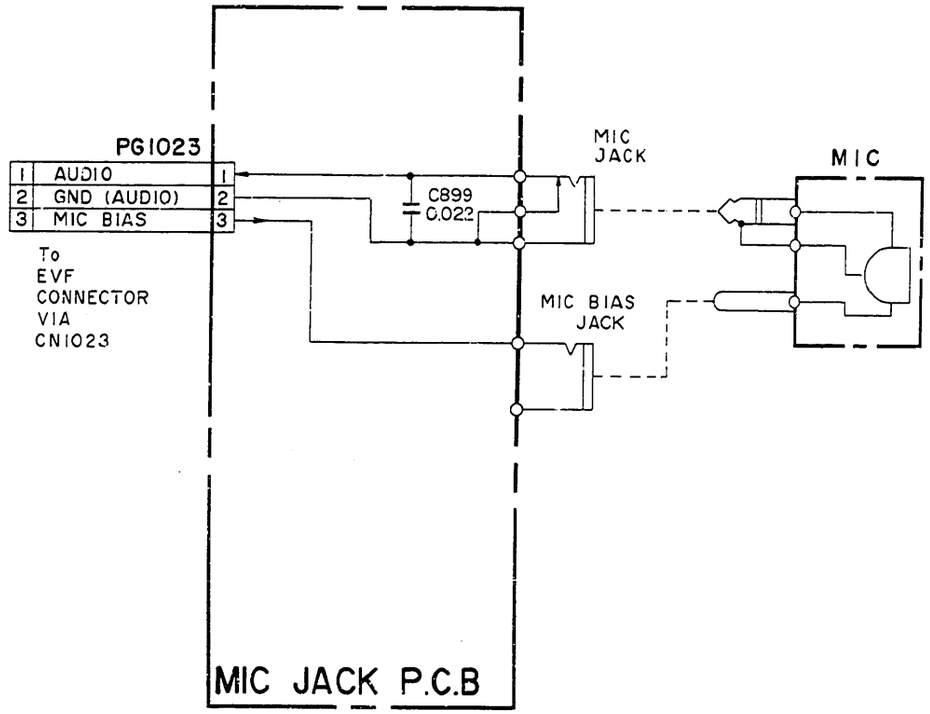
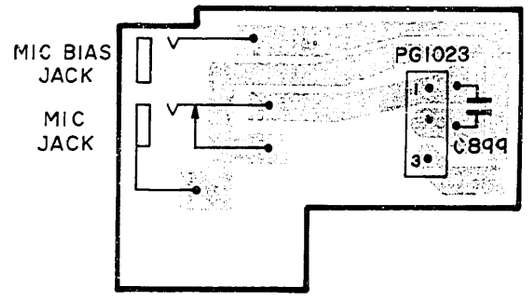
| CAMERA SW | 208 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 218 |
| SYSTEM CONTROL | 221 |
| SERVO | 223 |
| CYL. / CAPST. MOTORS DRIVE | 231 |
| SWITCHING REGULATOR | 232 |
| LUMA/CHROMA | 233 |
| FUNCTION SW | 246 |
| AUDIO | 252 |
| TROUBLE SENSOR | 249 |




MIC JACK SCHEMATIC DIAGRAM




MIC JACK CIRCUIT BOARD DIAGRAM



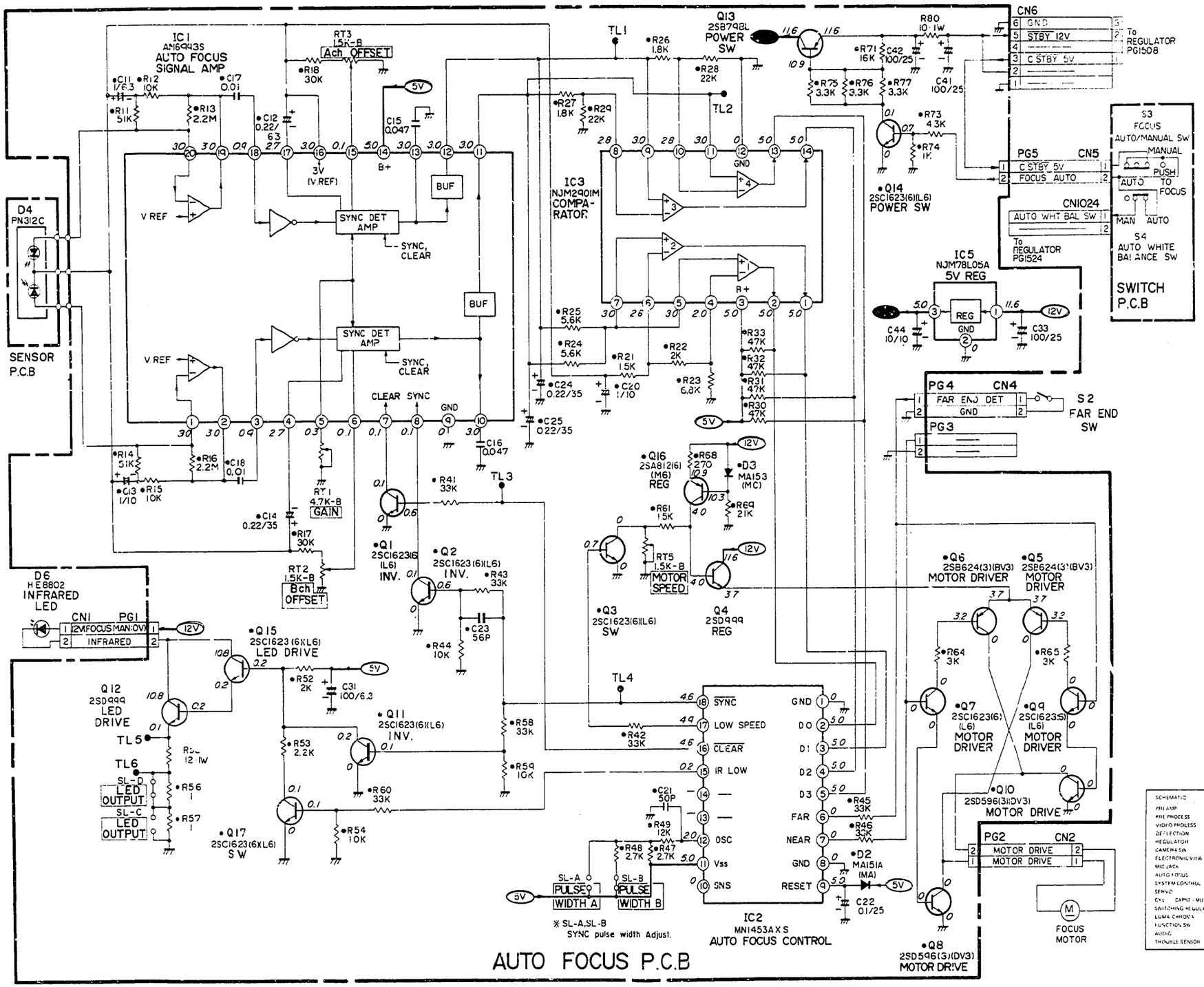

MIC JACK P.C.B

PG1023

| | |
|---|---|
| 1 | AUDIO |
| 2 | GND (AUDIO) |
| 3 | MIC BIAS |

To
EVF
CONNECTOR
VIA
CN1023

## AUTO FOCUS SCHEMATIC DIAGRAM




SCHEMATIC — PAGE

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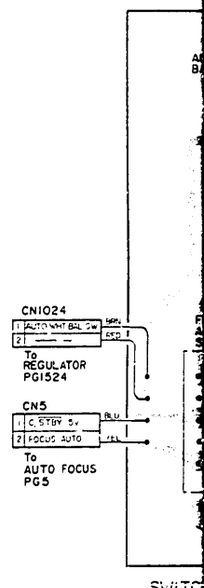
PRE PROCESS 173
VIDEO PROCESS 189
DEFLECTION 194
REGULATOR 200
CAMERA SW 208
ELECTRONIC VIEW FINDER 210
MIC JACK 215
AUTO FOCUS 216
SYSTEM CONTROL 221
SERVO 223
CYL CAPST - MOTOR DRIVE 231
SWITCHING REGULATOR 237
LUMA CHROMA 238
FUNCTION SW 246
AUDIO 252
TROUBLE SENSOR 249



## SWITCH CIRCUIT B




## AUTO FOCUS CIRCU

IC1

| | | | |
|---|---|---|---|
| 1 | 3.0 | 11 | 3.0 |
| 2 | 3.0 | 12 | 3.0 |
| 3 | 0.9 | 13 | 3.0 |
| 4 | 2.7 | 14 | 5.0 |
| 5 | 0.3 | 15 | 0.1 |
| 6 | 0.1 | 16 | 3.0 |
| 7 | 0.1 | 17 | 2.7 |
| 8 | 0.1 | 18 | 0.9 |
| 9 | 0 | 19 | 3.0 |
| 10 | 3.0 | 20 | 3.0 |

Q1

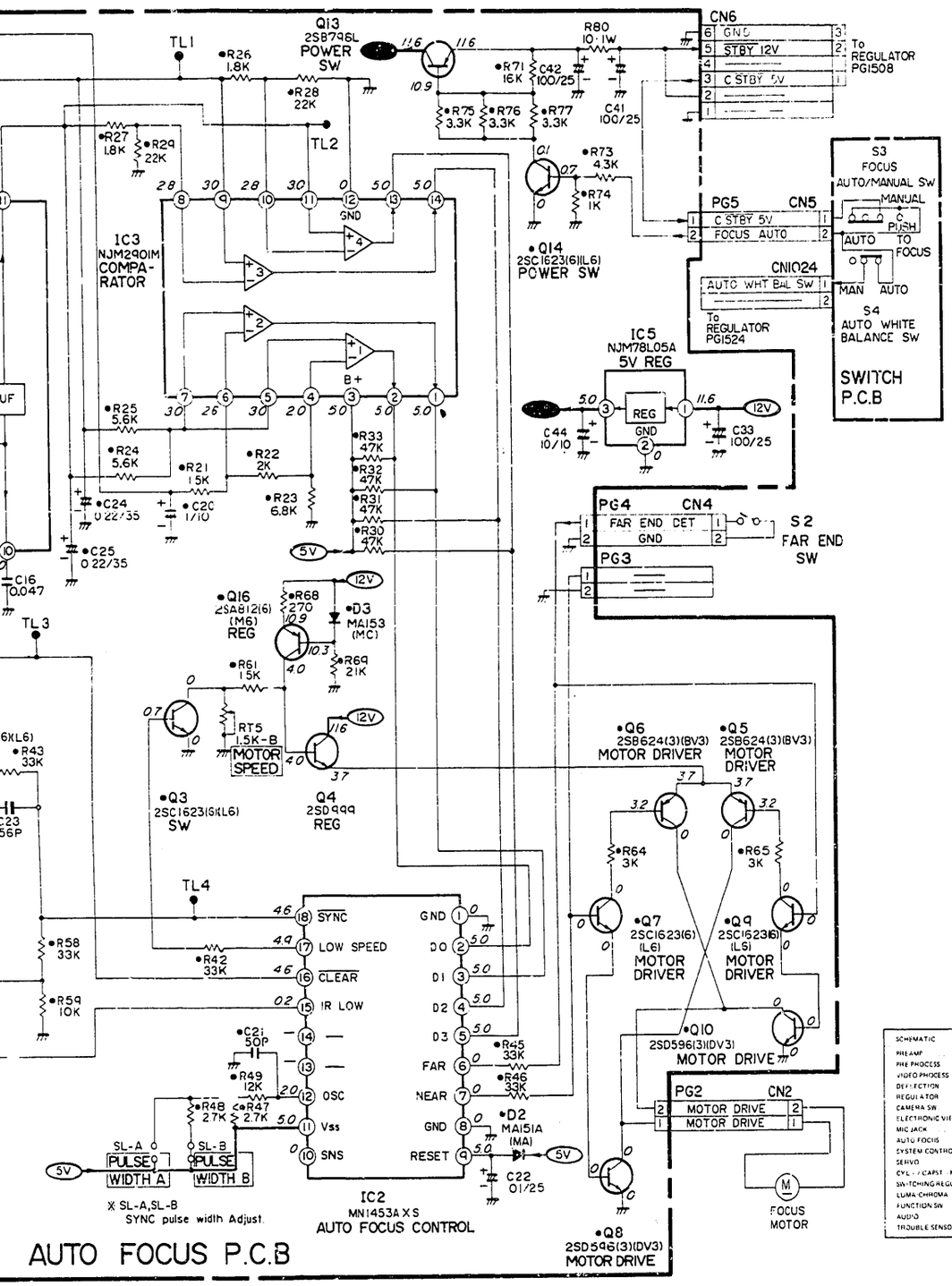
| | |
|---|---|
| B | 0.6 |
| C | 0.1 |
| E | 0 |

Q7

| | |
|---|---|
| B | 0 |
| C | 0 |
| E | 0 |

Q13

| | |
|---|---|
| B | 10.9 |
| C | 11.6 |
| E | 11.6 |




| SCHEMATIC | PAGE |
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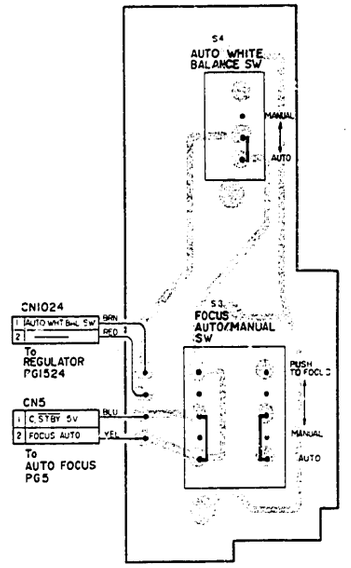
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 216 |
| SYSTEM CONTROL | 221 |
| SERVO | 223 |
| CYL. / CAPST. MOTORS DRIVE | 231 |
| SW-TCHING REGULATOR | 232 |
| LUMA-CHROMA | 233 |
| FUNCTION SW | 246 |
| AUDIO | 252 |
| TROUBLE SENSOR | 249 |

## SWITCH CIRCUIT BOARD




SWITCH C.B.A

## AUTO FOCUS CIRCUIT BOARD

IC1

| | | | |
|---|---|---|---|
| 1 | 3.0 | 11 | 3.0 |
| 2 | 3.0 | 12 | 3.0 |
| 3 | 0.9 | 13 | 3.0 |
| 4 | 2.7 | 14 | 5.0 |
| 5 | 0.3 | 15 | 0.1 |
| 6 | 0.1 | 16 | 3.0 |
| 7 | 0.1 | 17 | 2.7 |
| 8 | 0.1 | 18 | 0.9 |
| 9 | 0 | 19 | 3.0 |
| 10 | 3.0 | 20 | 3.0 |

IC2

| | | | |
|---|---|---|---|
| 1 | 0 | 10 | 0 |
| 2 | 5.0 | 11 | 5.0 |
| 3 | 5.0 | 12 | 2.0 |
| 4 | 5.0 | 13 | - |
| 5 | 5.0 | 14 | - |
| 6 | 0 | 15 | 0.2 |
| 7 | 0 | 16 | 4.6 |
| 8 | 0 | 17 | 4.9 |
| 9 | 5.0 | 18 | 4.6 |

IC3

| | | | |
|---|---|---|---|
| 1 | 5.0 | 8 | 2.8 |
| 2 | 5.0 | 9 | 3.0 |
| 3 | 5.0 | 10 | -2.8 |
| 4 | 2.0 | 11 | 3.0 |
| 5 | 3.0 | 12 | 0 |
| 6 | 2.6 | 13 | 5.0 |
| 7 | 3.0 | 14 | 5.0 |

IC5

| | |
|---|---|
| 1 | 11.6 |
| 2 | 0 |
| 3 | 5.0 |

Q1

| | |
|---|---|
| B | 0.6 |
| C | 0.1 |
| E | 0 |

Q2

| | |
|---|---|
| B | 0.6 |
| C | 0.1 |
| E | 0 |

Q3

| | |
|---|---|
| B | 0.7 |
| C | 0 |
| E | 0 |

Q4

| | |
|---|---|
| B | 4.0 |
| C | 11.6 |
| E | 3.7 |

Q5

| | |
|---|---|
| B | 3.2 |
| C | 0 |
| E | 3.7 |

Q6

| | |
|---|---|
| B | 3.2 |
| C | 0 |
| E | 3.7 |

Q7

| | |
|---|---|
| B | 0 |
| C | 0 |
| E | 0 |

Q8

| | |
|---|---|
| B | 0 |
| C | 0 |
| E | 0 |

Q9

| | |
|---|---|
| B | 0 |
| C | 0 |
| E | 0 |

Q10

| | |
|---|---|
| B | 0 |
| C | 0 |
| E | 0 |

Q11

| | |
|---|---|
| B | 0.1 |
| C | 0.2 |
| E | 0 |

Q12

| | |
|---|---|
| B | 0.2 |
| C | 10.8 |
| E | 0.1 |

Q13

| | |
|---|---|
| B | 10.9 |
| C | 11.6 |
| E | 11.6 |

Q14

| | |
|---|---|
| B | 0.7 |
| C | 0.1 |
| E | 0 |

Q15

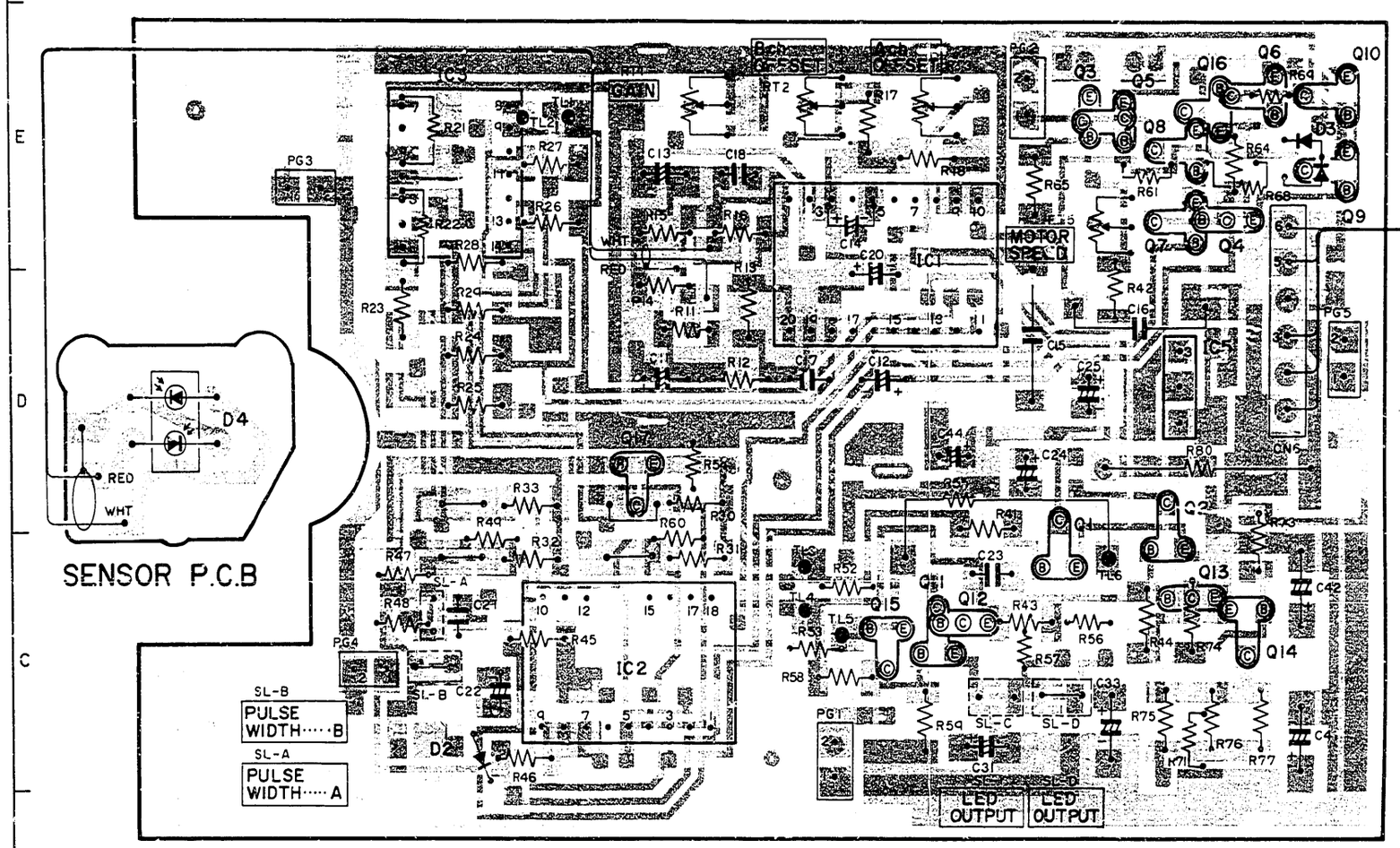
| | |
|---|---|
| B | 0.2 |
| C | 10.8 |
| E | 0.2 |

Q16

| | |
|---|---|
| B | 10.3 |
| C | 4.8 |
| E | 10.9 |

Q17

| | |
|---|---|
| B | 0.1 |
| C | 0.1 |
| E | 0 |




AUTO FOCUS P.C.B

PG1

| | |
|---|---|
| 2 | INFRARED |
| 1 | 12V(FOCUS MAN:0V |

To INFRARED LED CN1

PG2

| | |
|---|---|
| 2 | MOTOR DRIVE |
| 1 | MOTOR DRIVE |

To FOCUS MOTOR CN2

PG3

| | |
|---|---|
| 1 | — |
| 2 | — |

PG4

| | |
|---|---|
| 1 | FAR END DET. |
| 2 | GND |

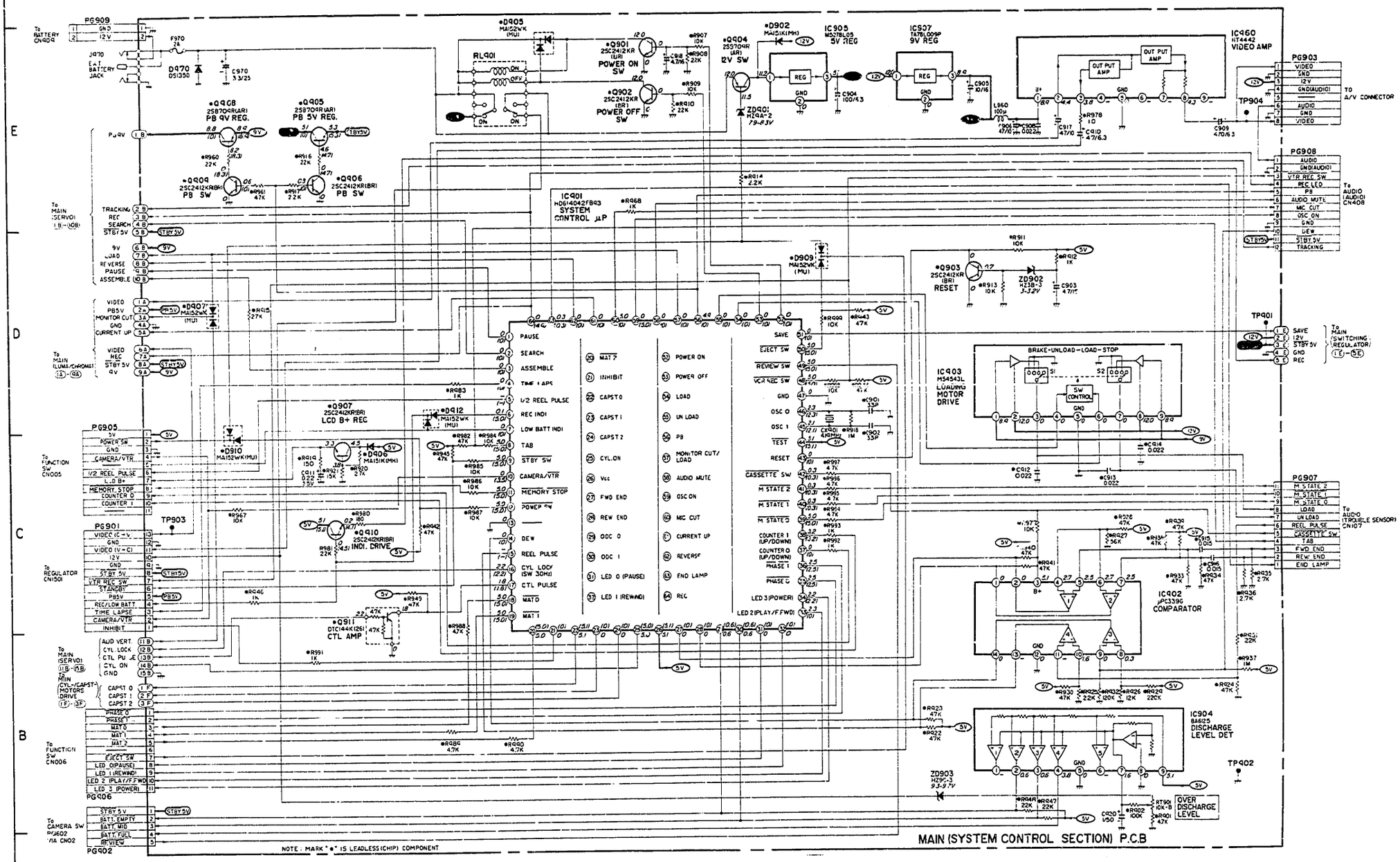
To FAR END SW CN4

PG5

| | |
|---|---|
| 2 | FOCUS AUTO |
| 1 | C.STBY 5V |

To SWITCH CN5

## SYSTEM CONTROL SCHEMATIC DIAGRAM




| SCHEMATIC | PAGE | SCHEMATIC | PAGE |
|---|---|---|---|
| PREAMP | 172 | SYSTEM CONTROL | 221 |
| PRE PROCESS | 173 | SERVO | 223 |
| VIDEO PROCESS | 189 | CYL. / CAPST. MOTORS DRIVE | 231 |
| DEFLECTION | 194 | SWITCHING REGULATOR | 232 |
| REGULATOR | 206 | LUMA/CHROMA | 233 |
| CAMERA SW | 208 | FUNCTION SW | 246 |
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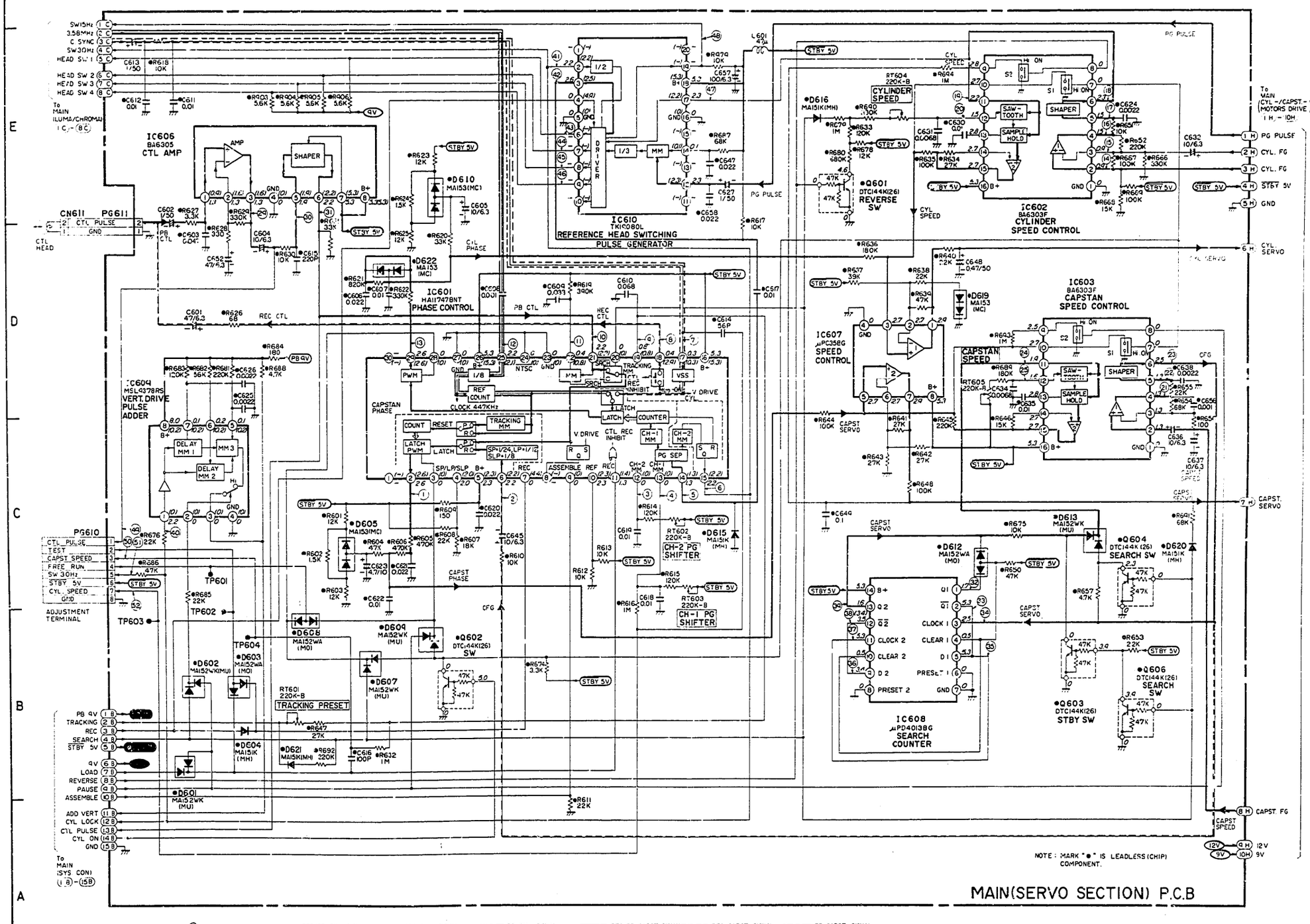
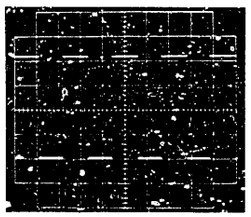
| MIC JACK | 215 | TROUBLE SENSOR | 249 |
| AUTO FOCUS | 216 | | |

## SERVO SCHEMATIC DIAGRAM

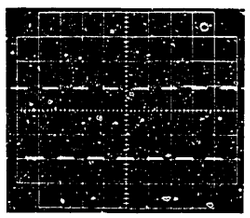


## SERVO WAVEFORMS

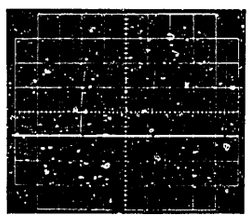
1-A IC601-2 REC/PLAY
1V/1msec.cm



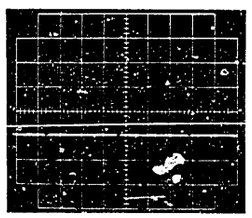
2-A IC601-6 REC/PLAY
1V/1msec.cm



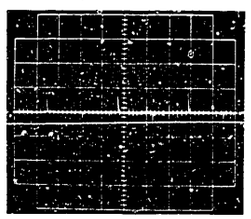
3-A IC601-12 REC/PLAY
1V/10msec.cm



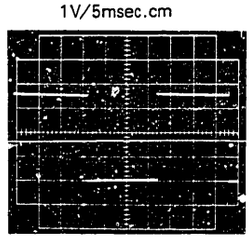
4-A IC601-13 REC/PLAY
1V/10msec.cm



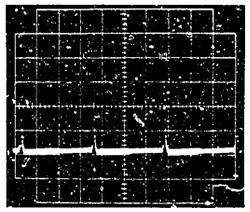
5-A IC601-14 REC/PLAY
1V/10msec.cm



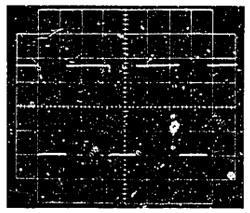
6-A IC601-15 REC/PLAY
1V/5msec.cm



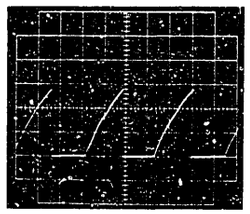
7-A IC601-17 REC/PLAY
0.2V/5msec.cm



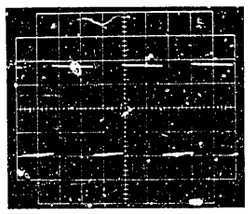
8-A IC601-18 REC
1V/10msec.cm



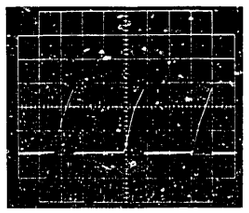
9-A IC601-19 REC/PLAY
1V/10msec.cm



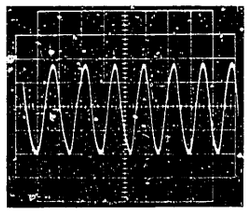
10-A IC601-21 PLAY
1V/10msec.cm



11-A IC601-22 PLAY
1V/10msec.cm

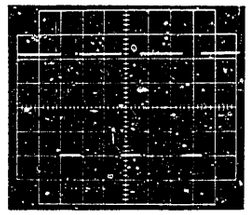


12-A IC601-25 REC/PLAY
0.1V/0.2μsec.cm

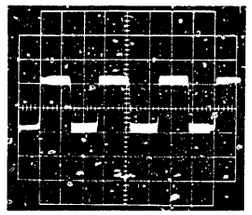


## SERVO WAVEFORMS

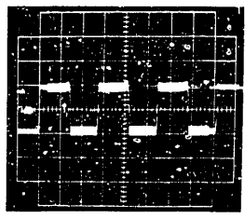
13-A IC601-29 REC/PLAY
1V/0.2msec.cm



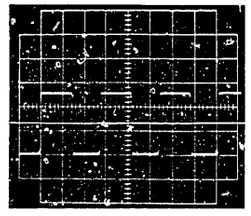
14-A IC602-2 REC/PLAY
50mV/1msec.cm



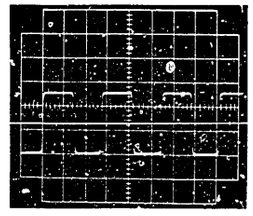
15-A IC602-3 REC/PLAY
50mV/1msec.cm



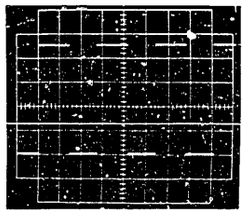
16-A IC602-4 REC/PLAY
1V/1msec.cm



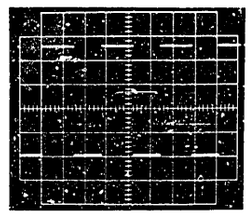
17-A IC602-5 REC/PLAY
1V/1msec.cm



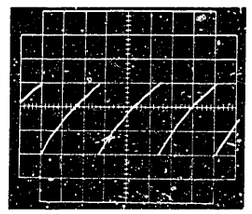
18-A IC602-6 REC/PLAY
1V/1msec.cm



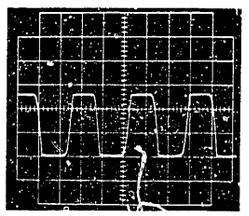
19-A IC602-11 REC/PLAY
1V/1msec.cm



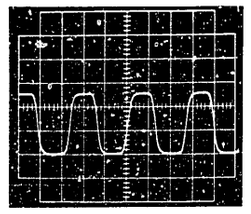
20-A IC602-12 REC/PLAY
1V/1msec.cm



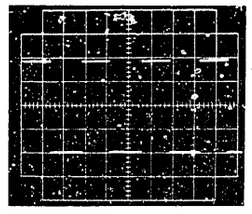
21-A IC603-4 REC/PLAY
1V/0.5msec.cm



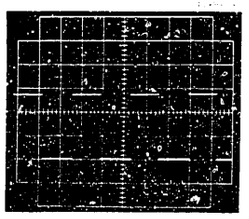
22-A IC603-5 REC/PLAY
1V/0.5msec.cm



23-A IC603-6 REC/PLAY
1V/0.5msec.cm

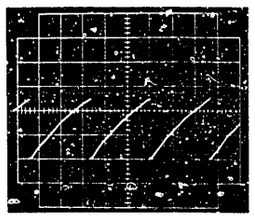


24-A IC603-11 REC/PLAY
1V/0.5msec.cm

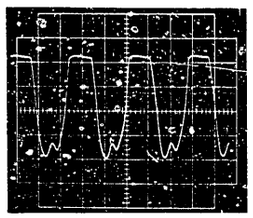


SERVO WAVEFORMS

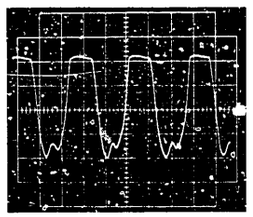
25-A IC603-12 REC/PLAY
1V/0.5msec.cm



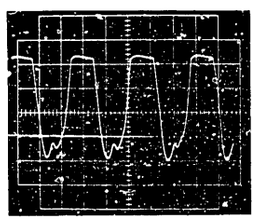
26-A IC605-15 REC/PLAY
1V/2msec.cm



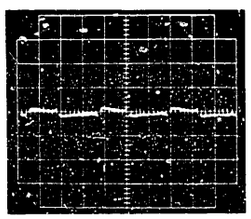
27-A IC605-16 REC/PLAY
1V/2msec.cm



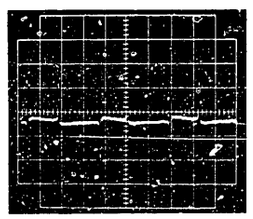
28-A IC605-17 REC/PLAY
1V/2msec.cm



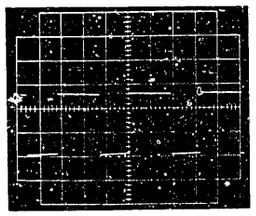
29-A IC606-3 PLAY
0.2V/10msec.cm



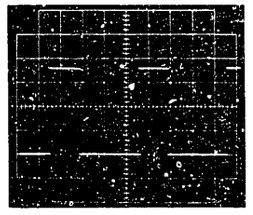
30-A IC606-5 PLAY
0.2V/10msec.cm



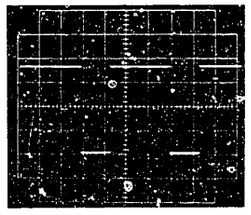
31-A IC606-6 PLAY
1V/10msec.cm



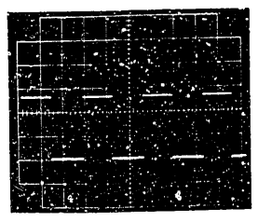
32-A IC608-1 REC/PLAY
1V/0.5msec.cm



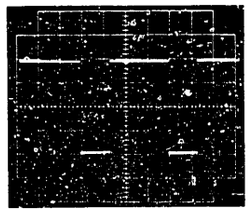
33-A IC608-2 REC/PLAY
1V/1msec.cm



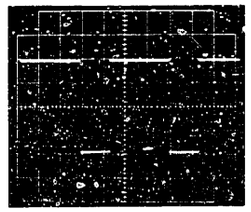
34-A IC608-3 REC/PLAY
1V/0.5msec.cm



35-A IC608-5 REC/PLAY
1V/1msec.cm

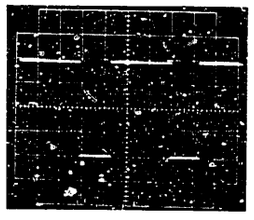


36-A IC608-9 REC/PLAY
1V/1msec.cm

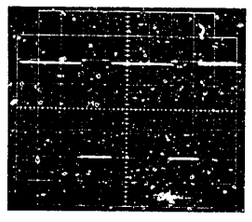


**SERVO WAVEFORMS**

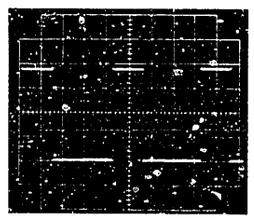
37-A IC608-11 REC/PLAY
1V/1msec.cm



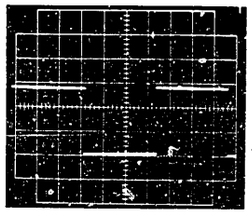
38-A IC608-12 REC/PLAY
1V/1msec.cm



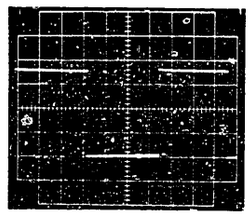
39-A IC608-13 REC/PLAY
1V/1msec.cm



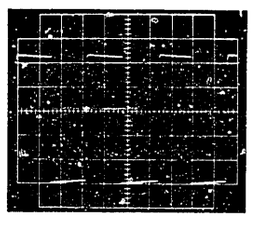
40-A IC609-1 REC/PLAY
0.2V/5msec.cm



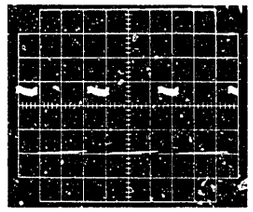
41-A IC610-2 REC/PLAY
1V/5msec.cm



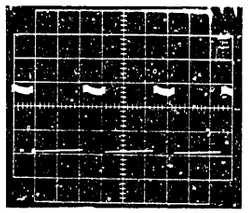
42-A IC610-3 REC/PLAY
1V/10msec.cm



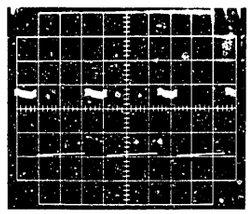
43-A IC610-6 REC
2V/20msec.cm



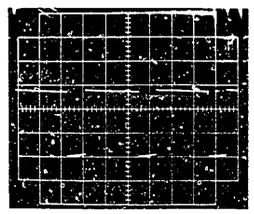
44-A IC610-7 REC
2V/20msec.cm



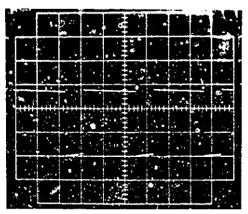
45-A IC610-8 REC
2V/20msec.cm



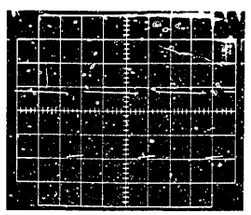
43-B IC610-6 PLAY
2V/20msec.cm



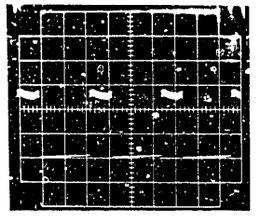
44-B IC610-7 PLAY
2V/20msec.cm



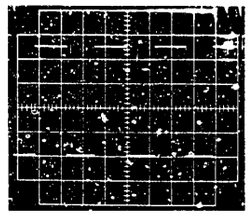
45-B IC610-8 PLAY
2V/20msec.cm



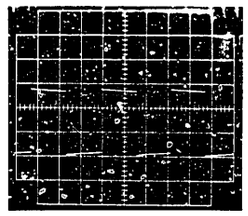
46-A IC610-9 REC
2V/20msec.cm



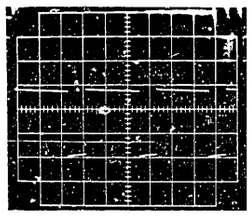
47-A IC610-17 REC/PLAY
1V/1msec.cm



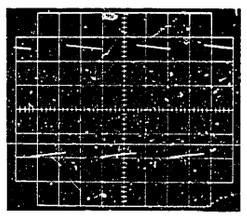
48-A IC610-19 REC
1V/20msec.cm



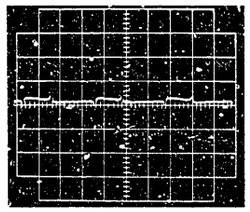
46-B IC610-9 PLAY
2V/20msec.cm



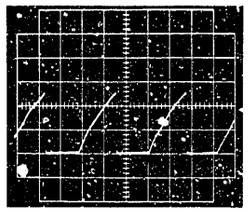
48-B IC610-19 PLAY
1V/20msec.cm



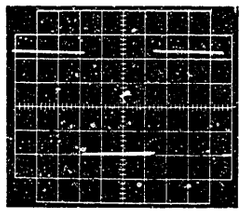
49-A PG610-1 PLAY
0.5V/10msec.cm



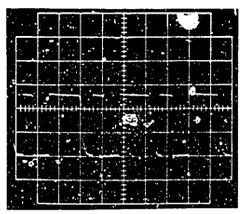
50-A PG610-3 REC/PLAY
1V/10msec.cm



51-A PG610-5 REC/PLAY
1V/5msec.cm

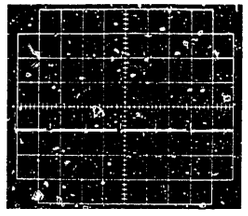


49-B PG610-1 REC
1V/10msec.cm

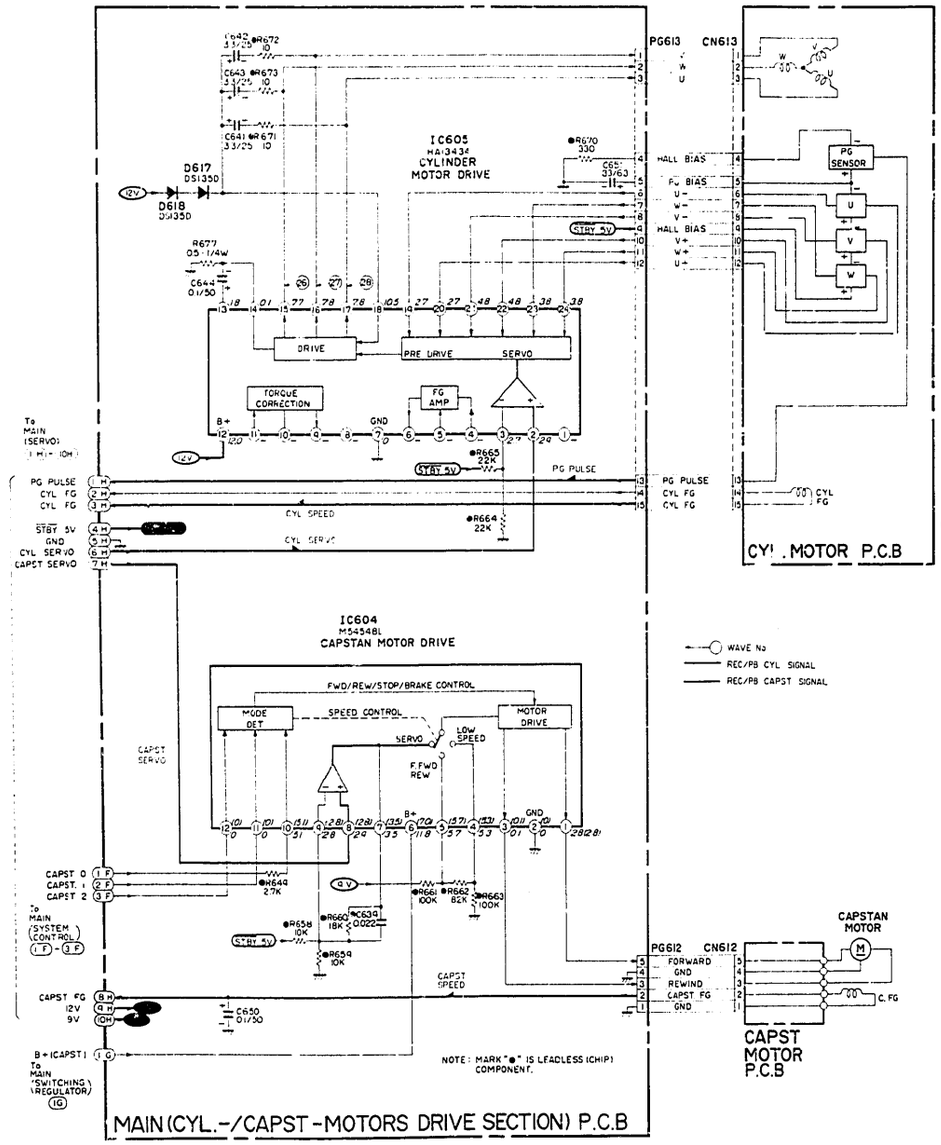




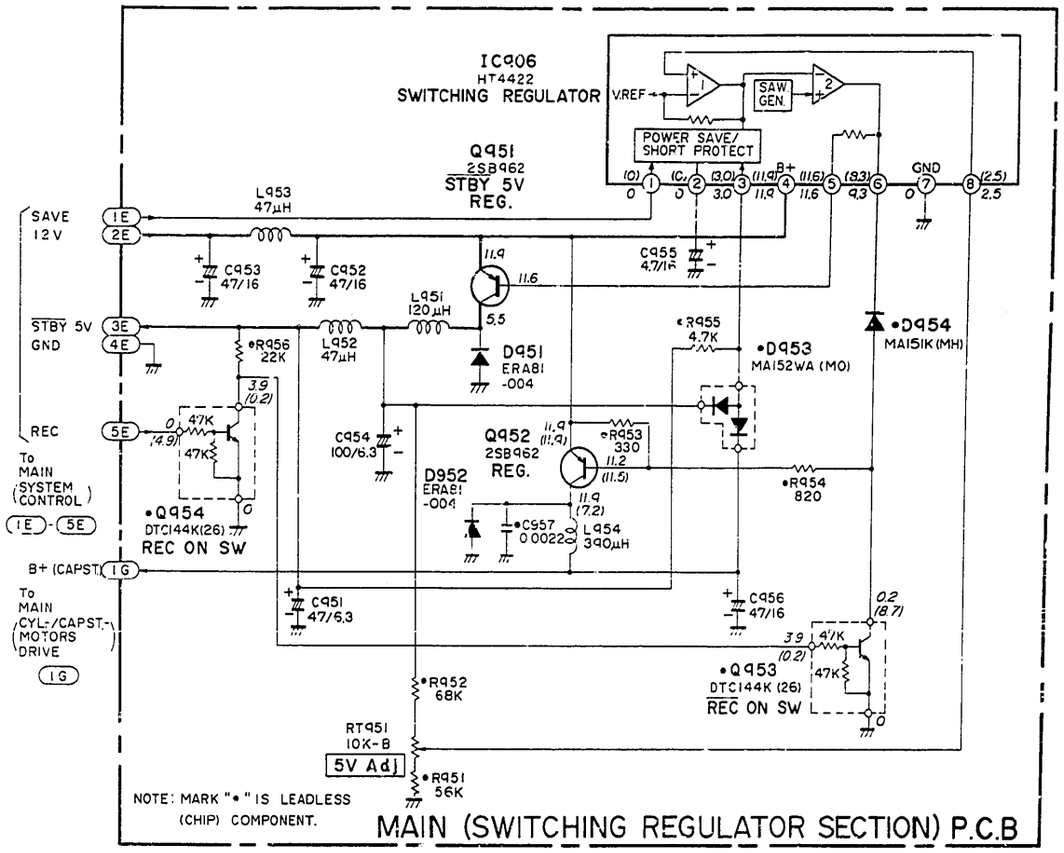
52-A PG610-7 REC/PLAY
1V/10msec.cm



## CYL. –/CAPST. – MOTORS DRIVE SCHEMATIC DIAGRAM




## SWITCHING REGULATOR SCHEMATIC DIAGRAM

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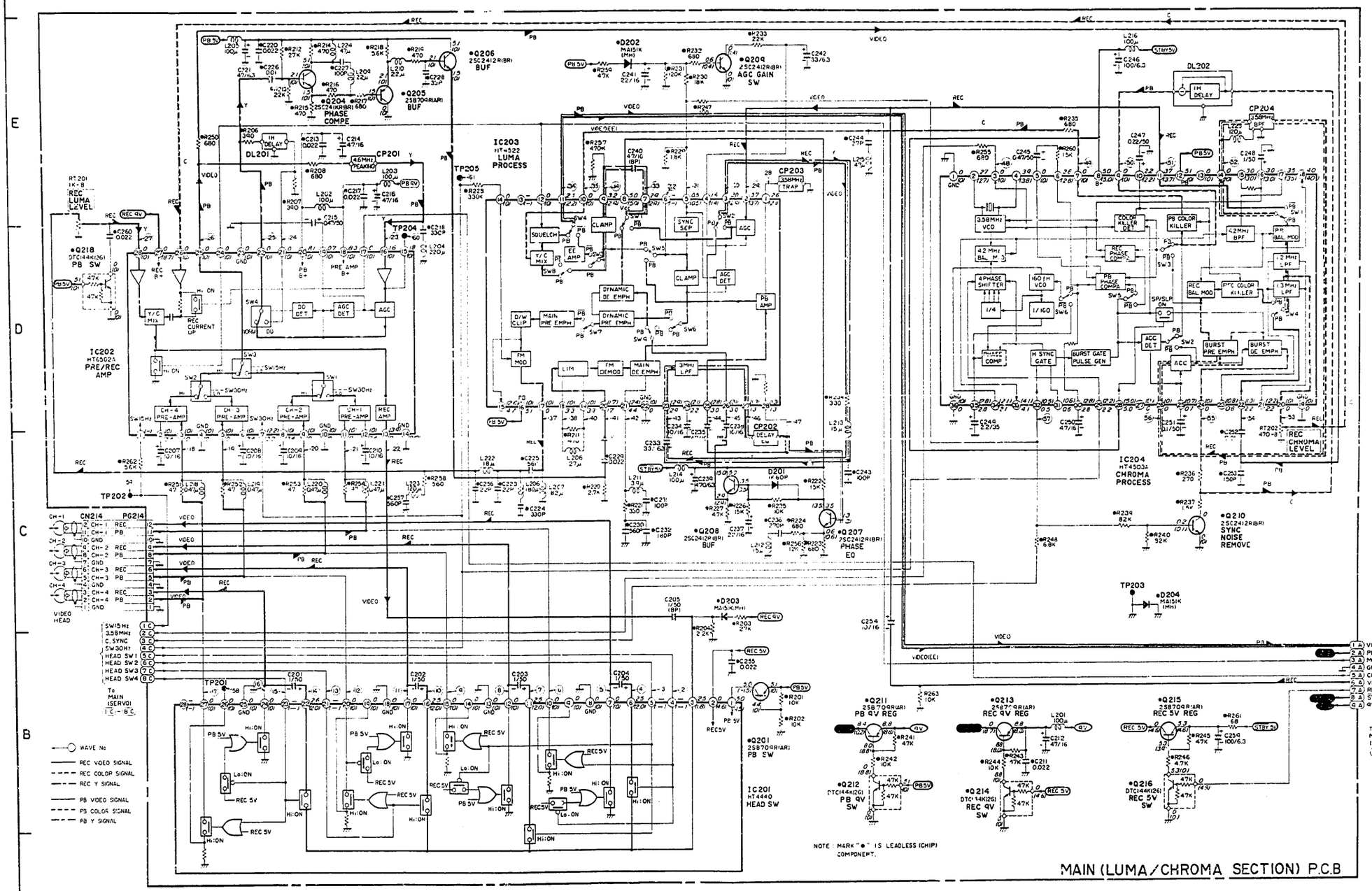
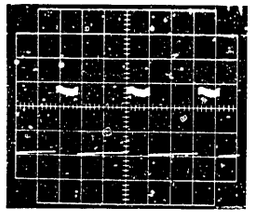
## LUMA/CHROMA SCHEMATIC DIAGRAM

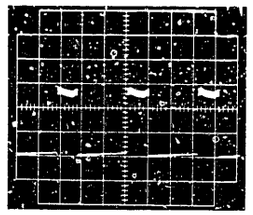



MAIN (LUMA/CHROMA SECTION) P.C.B

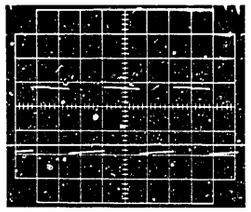
2-A IC201-4 REC
2V/20msec.cm



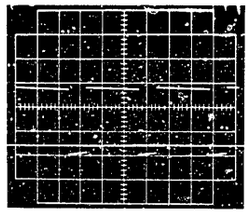
3-A IC201-5 REC
2V/20msec.cm



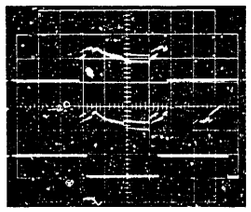
2-B IC201-4 PLAY
2V/20msec.cm



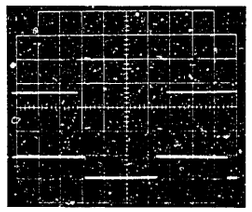
3-B IC201-5 PLAY
2V/20msec.cm



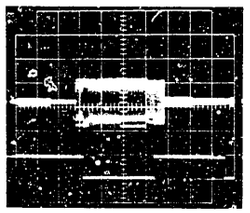
4-A IC201-6 REC
1V/5msec.cm



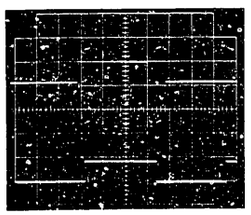
5-A IC201-7 REC
1V/5msec.cm



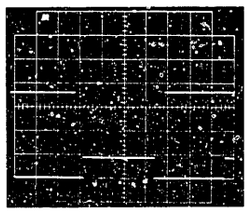
6-A IC201-10 REC
0.1V/5msec.cm



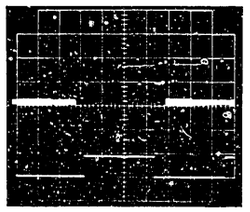
7-A IC201-11 REC
1V/5msec.cm



8-A IC201-12 REC
1V/5msec.cm



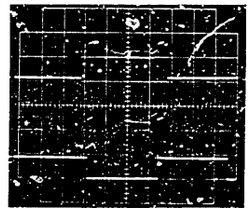
9-A IC201-15 REC
0.1V/5msec.cm



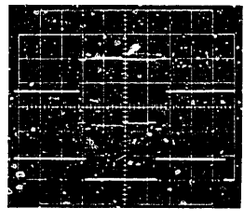




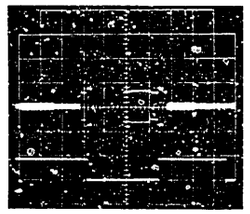
10-A IC201-16 REC
1V/5msec.cm



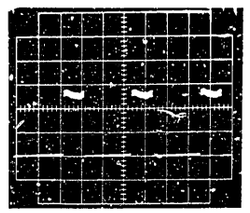
11-A IC201-17 REC
1V/5msec.cm



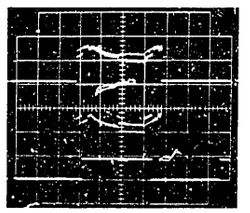
12-A IC201-20 REC
0.1V/5msec.cm



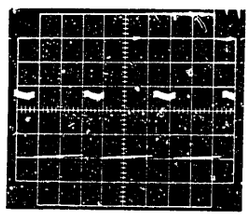
13-A IC201-21 REC
2V/20msec.cm



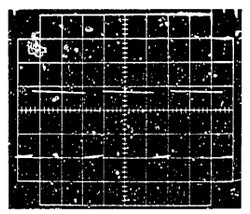
14-A IC201-22 REC
1V/5msec.cm



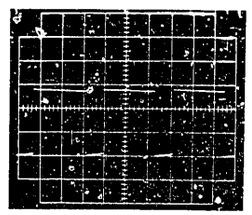
15-A IC201-23 REC
2V/20msec.cm



13-B IC201-21 PLAY
2V/20msec.cm

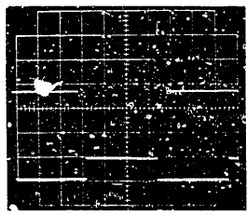


15-B IC201-23 PLAY
2V/20msec.cm

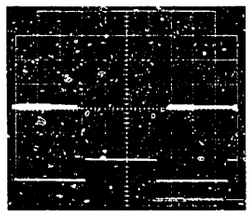


## LUMA/CHROMA WAVEFORMS

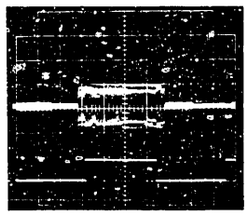
16-A IC201-24 REC
1V/5msec.cm



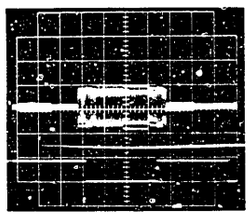
17-A IC201-27 REC
0.1V/5msec.cm



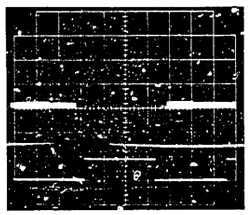
18-A IC202-3 REC
0.1V/20msec.cm



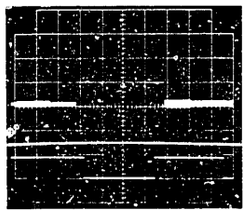
19-A IC202-5 REC
0.1V/20msec.cm



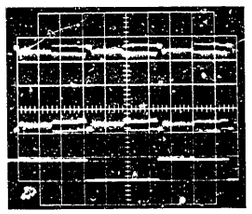
20-A IC202-9 REC
0.1V/5msec.cm



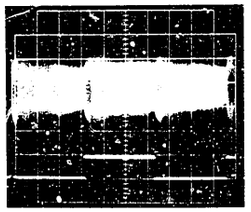
21-A IC202-11 REC
0.1V/5msec.cm



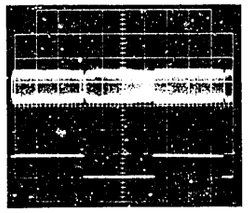
22-A IC202-13 REC
1V/5msec.cm



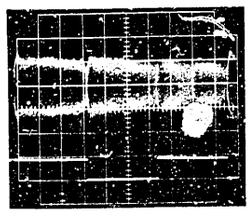
23-A IC202-16 PLAY
5mV/5msec.cm



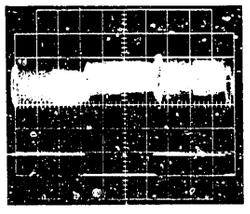
24-A IC202-21 PLAY
50mV/5msec.cm



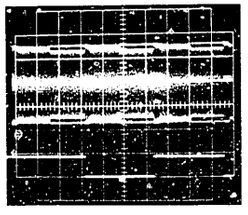
25-A IC202-22 PLAY
0.2V/5msec.cm



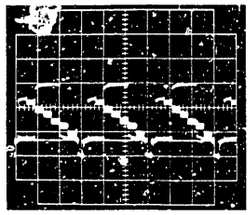
26-A IC202-25 PLAY
50mV/5msec.cm



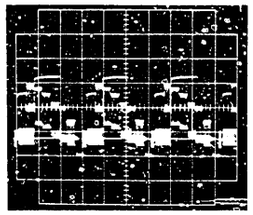
27-A IC202-28 REC
0.1V/5msec.cm



28-A IC203-1 REC
.1V/20usec.cm

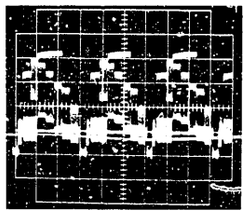


29-A IC203-2 REC
0.5V/20μsec.cm

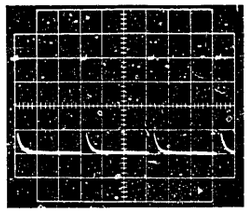


30-A IC203-3 PLAY
0.1V/20μsec.cm

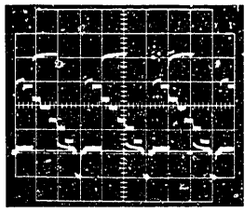
30-B IC203-3 REC
50mV/20μsec.cm



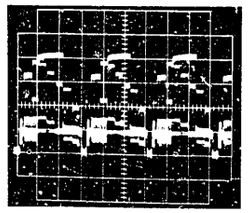
31-A IC203-5 REC/PLAY
1V/20μsec.cm



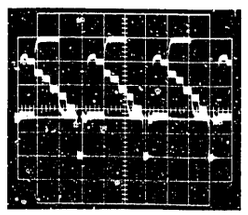
32-A IC203-6 REC/PLAY
0.2V/20μsec.cm



33-A IC203-7 REC
50mV/20μsec.cm



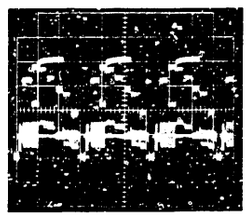
33-B IC203-7 PLAY
0.2V/20μsec.cm



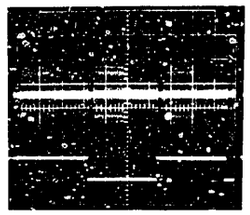




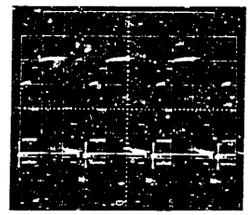
34-A IC203-9 REC
50mV/20μsec.cm



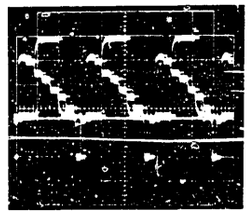
35-A IC203-10 PLAY
50mV/5msec.cm



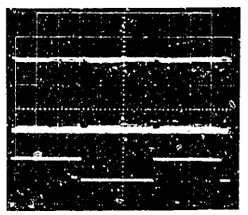
36-A IC203-11 REC/PLAY
0.2V/20μsec.cm



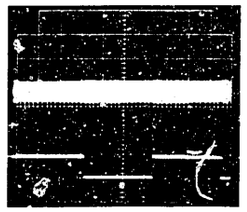
34-B IC203-9 PLAY
0.2V/20μsec.cm



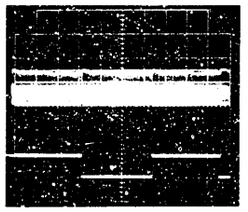
37-A IC203-17 REC
0.2V/5msec.cm



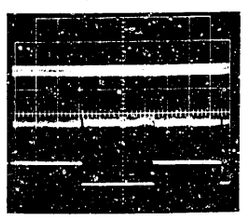
38-A IC203-18 REC
50mV/20usec.cm



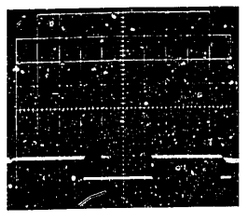
39-A IC203-18 PLAY
0.2V/20usec.cm



40-A IC203-19 PLAY
0.2V/5msec.cm

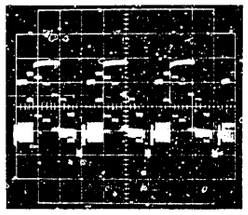


41-A IC203-20 PLAY
0.2V/5msec.cm

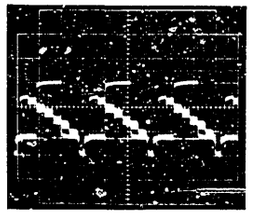


42-A IC203-21 PLAY
0.1V/5msec.cm

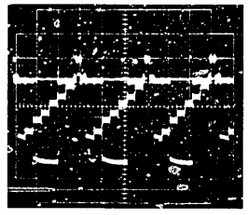
43-A IC203-23 REC
50mV/20μsec.cm



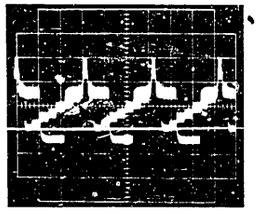
44-A IC203-25 REC
0.1V/20μsec.cm



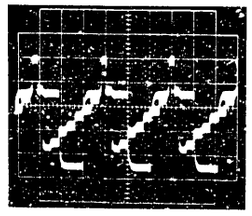
45-A IC203-26 REC
0.1V/20μsec.cm



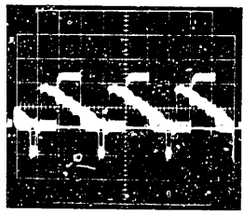
43-B IC203-23 PLAY
50mV/20μsec.cm



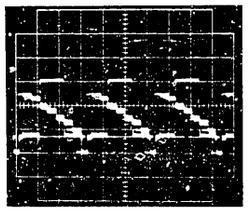
44-B IC203-25 PLAY
50mV/20μsec.cm



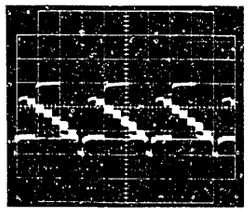
45-B IC203-26 PLAY
0.1V/20μsec.cm



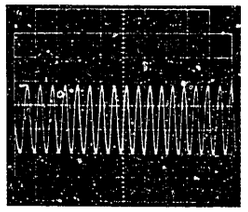
46-A IC203-27 REC
0.1V/20μsec.cm



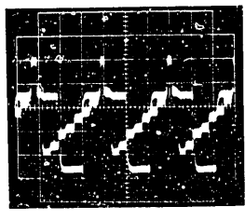
47-A IC203-28 REC
0.1V/20μsec.cm



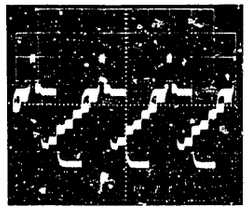
48-A IC204-3 REC/PLAY
0.2V/0.5μsec.cm



46-B IC203-27 PLAY
50mV/20μsec.cm



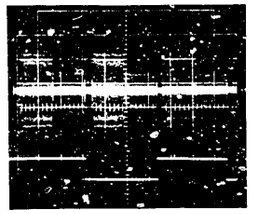
47-B IC203-28 PLAY
50mV/20μsec.cm



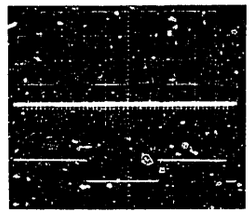




49-A IC204-7 PLAY
0.1V/5msec.cm

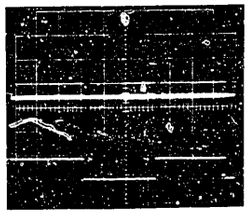


50-A IC204-9 PLAY
0.1V/5msec.cm

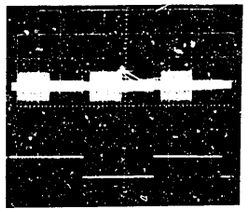


51-A IC204-11 REC
0.5V/20μsec.cm

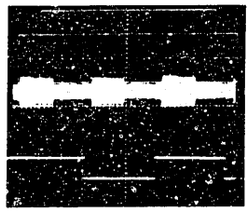
52-A IC204-14 REC/PLAY
0.1V/5msec.cm



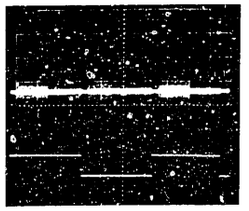
53-A IC204-20 REC
50mV/5msec.cm



54-A IC204-22 PLAY
50mV/5msec.cm

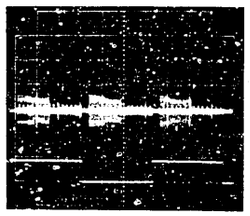


53-B IC204-20 PLAY
50mV/5msec.cm

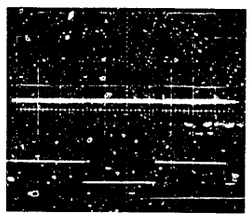


## LUMA/CHROMA WAVEFORMS

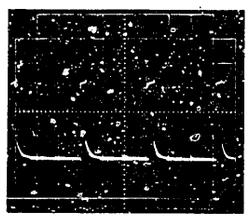
55-A IC204-24 PLAY
0.5V/5msec.cm



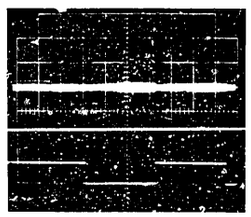
56-A IC204-26 REC
0.1V/5msec.cm



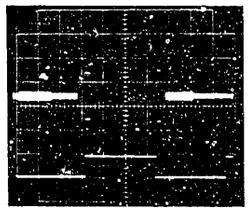
57-A IC204-32 REC/PLAY
1V/20μsec.cm



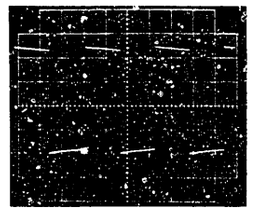
56-B IC204-26 PLAY
50mV/5msec.cm



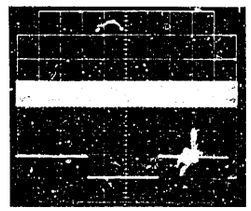
58-A TP201 REC
50mV/5msec.cm



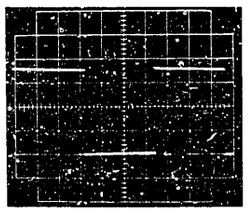
59-A TP202 REC/PLAY
0.5V/20msec.cm



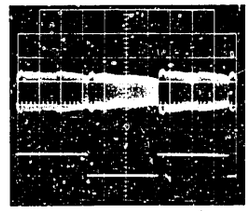
60-A TP204 REC
50mV/5msec.cm



61-A TP205 REC/PLAY
1V/5msec.cm



60-B TP204 PLAY
50mV/5msec.cm



# MAIN (SYSTEM CONTROL, SWITCHING REGULATOR, SERVO, CYL.–/CAPST.–MOTORS DRIVE, LUMA/CHROMA) CIRCUIT BOARD DIAGRAM

**IC201**

| | | | |
|---|---|---|---|
| 1 | 5.0(-1.5) | 15 | 0 (0) |
| 2 | 0 (4.6) | 16 | 2.5 (2.0) |
| 3 | 2.5 (1.8) | 17 | 0 (0) |
| 4 | - (-) | 18 | 0 (0) |
| 5 | - (-) | 19 | 0 (0) |
| 6 | 2.5 (2.0) | 20 | 0 (0) |
| 7 | 0 (0) | 21 | - (-) |
| 8 | 0 (0) | 22 | 2.6 (2.0) |
| 9 | 0 (0) | 23 | - (-) |
| 10 | 0 (0) | 24 | 0 (0) |
| 11 | 2.5 (2.0) | 25 | 0 (0) |
| 12 | 0 (0) | 26 | 0 (0) |
| 13 | 0 (0) | 27 | 0 (0) |
| 14 | 0 (0) | 28 | - (-) |

**IC202**

| | | | |
|---|---|---|---|
| 1 | - (-) | 15 | 1.8 (0) |
| 2 | 3.4 (0) | 16 | 1.6 (0) |
| 3 | 0 (0) | 17 | 0 (0) |
| 4 | 0 (0) | 18 | 8.3 (0) |
| 5 | 0 (0) | 19 | 0.7 (0) |
| 6 | 3.4 (0) | 20 | 8.1 (0) |
| 7 | 2.2 (2.2) | 21 | 0 (0) |
| 8 | 3.4 (0) | 22 | 0 (0) |
| 9 | 0 (0) | 23 | 0 (0) |
| 10 | 0 (0) | 24 | 0 (0) |
| 11 | 0 (0) | 25 | 0 (0) |
| 12 | 3.4 (0) | 26 | 0 (0) |
| 13 | 0 (3.9) | 27 | 0 (8.7) |
| 14 | 0 (0) | 28 | 0 (0) |

**IC203**

| | | | |
|---|---|---|---|
| 1 | 2.6 (2.1) | 15 | 4.7 (2.6) |
| 2 | 3.7 (3.7) | 16 | 5.1 (0) |
| 3 | 3.0 (2.9) | 17 | 0 (0) |
| 4 | 1.6 (1.4) | 18 | 3.3 (0) |
| 5 | 0.5 (0.5) | 19 | 3.3 (0) |
| 6 | - (-) | 20 | 1.7 (1.7) |
| 7 | 2.9 (2.9) | 21 | 4.4 (2.4) |
| 8 | 5.0 (5.0) | 22 | 0 (0) |
| 9 | 3.2 (2.9) | 23 | 2.9 (2.9) |
| 10 | 0 (0) | 24 | 2.2 (2.1) |
| 11 | 2.4 (2.2) | 25 | 3.0 (2.8) |
| 12 | 0 (0) | 26 | 3.0 (3.1) |
| 13 | - (-) | 27 | 1.3 (1.3) |
| 14 | 0 (0) | 28 | 1.3 (1.3) |

**IC204**

| | | | |
|---|---|---|---|
| 1 | 0 (0) | 13 | 0 (0) |
| 2 | 2.7 (2.7) | 14 | 0 (0) |
| 3 | 0 (0) | 15 | 3.0 (3.0) |
| 4 | 3.9 (3.8) | 16 | 3.0 (3.0) |
| 5 | 0 (0) | 17 | 3.5 (3.5) |
| 6 | 2.8 (2.8) | 18 | 4.0 (4.0) |
| 7 | 0 (0) | 19 | 0 (0) |
| 8 | 5.0 (5.0) | 20 | 0 (0) |
| 9 | 0 (0) | 21 | 2.2 (2.2) |
| 10 | 2.2 (2.2) | 22 | 2.2 (1.3) |
| 11 | 3.7 (3.7) | 23 | 0.8 (0.8) |
| 12 | 5.1 (0) | 24 | 0 (0) |
| 25 | 0.7 (0.7) | | |
| 26 | 0 (0) | | |
| 27 | 0 (0) | | |
| 28 | 3.0 (3.0) | | |
| 29 | 5.0 (5.0) | | |
| 30 | 2.8 (2.8) | | |
| 31 | 0.6 (0.6) | | |
| 32 | 0.5 (0.5) | | |
| 33 | 4.1 (4.1) | | |
| 34 | 2.1 (2.1) | | |
| 35 | 2.8 (2.8) | | |
| 36 | 0 (0) | | |

**IC601**

| | | | |
|---|---|---|---|
| 1 | - (-) | 11 | 1.3 (1.4) |
| 2 | 2.6 (2.6) | 12 | 0 (0) |
| 3 | 0 (0) | 13 | 0 (0) |
| 4 | 2.0 (2.0) | 14 | 1.3 (1.3) |
| 5 | 2.3 (2.5) | 15 | 2.2 (2.2) |
| 6 | 2.2 (2.2) | 16 | 5.3 (5.3) |
| 7 | 0 (4.4) | 17 | 0.3 (0.3) |
| 8 | - (-) | 18 | 0.4 (2.9) |
| 9 | 0 (0) | 19 | 0.8 (0.8) |
| 10 | 2.3 (2.3) | 20 | 0 (0) |
| 21 | 2.2 (2.2) | | |
| 22 | 0.4 (0.8) | | |
| 23 | 0 (0) | | |
| 24 | 0 (0) | | |
| 25 | 2.2 (2.1) | | |
| 26 | 5.3 (5.3) | | |
| 27 | 0 (0) | | |
| 28 | 0 (0) | | |
| 29 | 2.6 (2.6) | | |
| 30 | - (-) | | |

**IC603**

| | | | |
|---|---|---|---|
| 1 | 0 | 9 | 2.5 |
| 2 | 1.3 | 10 | 2.7 |
| 3 | 1.3 | 11 | 1.9 |
| 4 | 1.3 | 12 | 1.6 |
| 5 | 1.3 | 13 | 2.8 |
| 6 | 2.5 | 14 | 2.7 |
| 7 | 0 | 15 | 2.7 |
| 8 | 0 | 16 | 5.3 |

**IC604**

| | | | |
|---|---|---|---|
| 1 | 2.8 (2.8) | 7 | 3.5 (3.5) |
| 2 | 0 (0) | 8 | 2.9 (2.8) |
| 3 | 0.1 (0.1) | 9 | 2.8 (2.8) |
| 4 | 5.3 (5.3) | 10 | 5.1 (5.1) |
| 5 | 5.7 (5.7) | 11 | 0 (0) |
| 6 | 11.8 (7.0) | 12 | 0 (0) |

**IC605**

| | | | |
|---|---|---|---|
| 1 | - | 13 | 1.8 |
| 2 | 2.9 | 14 | 0.1 |
| 3 | 2.7 | 15 | 7.7 |
| 4 | - | 16 | 7.8 |
| 5 | - | 17 | 7.8 |
| 6 | - | 18 | 10.5 |
| 7 | 0 | 19 | 2.7 |
| 8 | - | 20 | 2.7 |
| 9 | - | 21 | 4.8 |
| 10 | - | 22 | 4.8 |
| 11 | - | 23 | 3.8 |
| 12 | 12.0 | 24 | 3.8 |

**IC606**

| | | | |
|---|---|---|---|
| 1 | 1.3 (0.9) | | |
| 2 | 1.3 (1.6) | | |
| 3 | 1.3 (1.6) | | |
| 4 | 0 (0) | | |
| 5 | 1.9 (1.9) | | |
| 6 | 2.2 (2.2) | | |
| 7 | 5.3 (5.3) | | |
| 8 | 5.3 (5.3) | | |

**IC607**

| | | | |
|---|---|---|---|
| 1 | 2.9 | | |
| 2 | 2.7 | | |
| 3 | 2.7 | | |
| 4 | 0 | | |
| 5 | 2.7 | | |
| 6 | 2.7 | | |
| 7 | 2.9 | | |
| 8 | 5.3 | | |

**IC608**

| | | | |
|---|---|---|---|
| 1 | 1.7 | 8 | 0 |
| 2 | 5.3 | 9 | 3.4 |
| 3 | 2.5 | 10 | 0.5 |
| 4 | 0.5 | 11 | 5.3 |
| 5 | 5.3 | 12 | 3.5 |
| 6 | 0 | 13 | 1.6 (3.4) |
| 7 | 0 | 14 | 5.3 |

**IC609**

| | | | |
|---|---|---|---|
| 1 | 2.2 (0) | | |
| 2 | 0 (0) | | |
| 3 | 0 (0) | | |
| 4 | 0 (0) | | |
| 5 | 0.1 (0.2) | | |
| 6 | 0.2 (0.2) | | |
| 7 | 0.1 (0.2) | | |
| 8 | 8.0 (10.2) | | |

**IC901**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 (0) | 9 | 5.0 (5.0) | 17 | 2.0 (2.0) | 25 | 5.0 (5.0) | 33 | 2.3 (0) | 41 | 0.3 (0.3) | 49 | 5.0 (5.0) | 57 | 0 (0) |
| 2 | 0 (0) | 10 | 0 (3.5) | 18 | 5.0 (5.0) | 26 | 5.1 (5.1) | 34 | 2.2 (2.2) | 42 | 0.3 (0.3) | 50 | 5.0 (5.0) | 58 | 0 (0) |
| 3 | 0 (0) | 11 | 5.0 (5.0) | 19 | 5.0 (5.0) | 27 | 0 (0) | 35 | 2.5 (2.5) | 43 | 0 (0) | 51 | 0 (0) | 59 | 0 (5.0) |
| 4 | 0 (0) | 12 | 5.0 (5.0) | 20 | 5.0 (5.0) | 28 | 0 (0) | 36 | 2.5 (2.5) | 44 | 5.1 (5.1) | 52 | 0 (0) | 60 | 5.0 (0) |
| 5 | - (-) | 13 | 0 | 21 | 0 (0) | 29 | 0.6 (0.6) | 37 | 0 (0) | 45 | 2.1 (2.1) | 53 | 0 (0) | 61 | 0 (0) |
| 6 | 0 (1.5) | 14 | 0 (0) | 22 | 5.1 (5.1) | 30 | 0.6 (0.6) | 38 | 3.2 (3.2) | 46 | 2.3 (2.3) | 54 | 0 (0) | 62 | 0 (0) |
| 7 | 0 (0) | 15 | - (-) | 23 | 0 (0) | 31 | 0 (0) | 39 | 5.0 (5.0) | 47 | 0 | 55 | 0 (0) | 63 | 0.3 (0.3) |
| 8 | 5.0 (5.0) | 16 | 2.2 (2.2) | 24 | 0 (0) | 32 | 0 (0) | 40 | 0.3 (0.3) | 48 | 5.0 (5.0) | 56 | 4.9 (0) | 64 | 0 (4.9) |

**IC902**

| | | | |
|---|---|---|---|
| 1 | 0 | 8 | 0.3 |
| 2 | 0 | 9 | 0 |
| 3 | 5.1 | 10 | 1.6 |
| 4 | 2.7 | 11 | - |
| 5 | 2.5 | 12 | 0 |
| 6 | 2.7 | 13 | - |
| 7 | 2.5 | 14 | 0 |

**IC903**

| | | | |
|---|---|---|---|
| 1 | 8.9 | | |
| 2 | 12.0 | | |
| 3 | 0 | | |
| 4 | 0 | | |
| 5 | 0 | | |
| 6 | 0 | | |
| 7 | 0 | | |
| 8 | 12.0 | | |
| 9 | 8.9 | | |

**IC904**

| | | | |
|---|---|---|---|
| 1 | - | | |
| 2 | 0.6 | | |
| 3 | 0.6 | | |
| 4 | 3.8 | | |
| 5 | 0 | | |
| 6 | - | | |
| 7 | 1.6 | | |
| 8 | 0 | | |
| 9 | 5.1 | | |

**IC905**

| | | | |
|---|---|---|---|
| 1 | 11.2 | | |
| 2 | 0 | | |
| 3 | 5.1 | | |

**IC907**

| | | | |
|---|---|---|---|
| 1 | 12.0 | | |
| 2 | 0 | | |
| 3 | 8.9 | | |

**IC602**

| | | | |
|---|---|---|---|
| 1 | 0 | 9 | 2.8 |
| 2 | 0.9 | 10 | 2.7 |
| 3 | 0.9 | 11 | 2.2 |
| 4 | 1.5 | 12 | 1.5 |
| 5 | 1.5 | 13 | 2.8 |
| 6 | 2.3 | 14 | 2.7 |
| 7 | 0 | 15 | 2.7 |
| 8 | 0 | 16 | 5.3 |

**IC610**

| | | | |
|---|---|---|---|
| 1 | - (-) | 11 | - (-) |
| 2 | 2.2 (2.2) | 12 | 2.3 (2.3) |
| 3 | 2.6 (2.5) | 13 | - (-) |
| 4 | 0 (4.9) | 14 | 0.1 (0.1) |
| 5 | 0 (0) | 15 | - (-) |
| 6 | - (-) | 16 | 0 (0) |
| 7 | - (-) | 17 | 2.3 (2.2) |
| 8 | - (-) | 18 | 5.3 (5.3) |
| 9 | - (-) | 19 | - (-) |
| 10 | - (-) | 20 | - (-) |

**IC906**

| | | | |
|---|---|---|---|
| 1 | 0 (0) | | |
| 2 | 0 (0) | | |
| 3 | 3.0 (3.0) | | |
| 4 | 11.9 (11.9) | | |
| 5 | 11.6 (11.6) | | |
| 6 | 9.3 (8.3) | | |
| 7 | 0 | | |
| 8 | 2.5 (2.5) | | |

**IC960**

| | | | |
|---|---|---|---|
| 1 | 8.9 | | |
| 2 | 4.4 | | |
| 3 | 3.8 | | |
| 4 | - | | |
| 5 | 0 | | |
| 6 | - | | |
| 7 | - | | |
| 8 | 4.3 | | |
| 9 | - | | |

**Q201**

| | | | |
|---|---|---|---|
| B | 4.4 (0) | | |
| C | 5.0 (-1.5) | | |
| E | 0 (0) | | |

**Q204**

| | | | |
|---|---|---|---|
| B | 2.1 (0) | | |
| C | 5.1 (0) | | |
| E | 1.5 (0) | | |

**Q205**

| | | | |
|---|---|---|---|
| B | 1.5 (0) | | |
| C | 2.1 (0) | | |
| E | 0 (0) | | |

**Q206**

| | | | |
|---|---|---|---|
| B | 2.1 (0) | | |
| C | 5.1 (0) | | |
| E | 1.5 (0) | | |

**Q207**

| | | | |
|---|---|---|---|
| B | 1.3 (1.3) | | |
| C | 3.5 (3.5) | | |
| E | 0.6 (0.6) | | |

**Q208**

| | | | |
|---|---|---|---|
| B | 3.5 (3.5) | | |
| C | 5.0 (5.0) | | |
| E | 2.3 (2.9) | | |

**Q209**

| | | | |
|---|---|---|---|
| B | 0.6 (0.4) | | |
| C | 0 (1.4) | | |
| E | 0 (0) | | |

**Q210**

| | | | |
|---|---|---|---|
| B | 0.2 (0.1) | | |
| C | 0 | | |
| E | 0 (0) | | |

**Q211**

| | | | |
|---|---|---|---|
| B | 8.0 (8.8) | | |
| C | 8.4 (0.2) | | |
| E | 8.8 (8.8) | | |

**Q212**

| | | | |
|---|---|---|---|
| B | 5.1 (0) | | |
| C | 0 (6.8) | | |
| E | 0 (0) | | |

**Q213**

| | | | |
|---|---|---|---|
| B | 8.8 (8.0) | | |
| C | 0 (8.7) | | |
| E | 8.8 (8.8) | | |

**Q214**

| | | | |
|---|---|---|---|
| B | 0 (4.6) | | |
| C | 8.8 (0) | | |
| E | 0 (0) | | |

**Q215**

| | | | |
|---|---|---|---|
| B | 5.3 (3.9) | | |
| C | 0 (4.6) | | |
| E | 5.3 (4.6) | | |

**Q216**

| | | | |
|---|---|---|---|
| B | 0 (4.9) | | |
| C | 5.3 (0) | | |
| E | 0 (0) | | |

**Q218**

| | | | |
|---|---|---|---|
| B | 5.1 (0) | | |
| C | 0 (0) | | |
| E | 0 (0) | | |

**Q601**

| | | | |
|---|---|---|---|
| B | 0 | | |
| C | 4.6 | | |
| E | 0 | | |

**Q603**

| | | | |
|---|---|---|---|
| B | 3.9 | | |
| C | 0 | | |
| E | 0 | | |

**Q604**

| | | | |
|---|---|---|---|
| B | 0 | | |
| C | 2.3 | | |
| E | 0 | | |

**Q602**

| | | | |
|---|---|---|---|
| B | 5.0 | | |
| C | 0 | | |
| E | 0 | | |

**Q606**

| | | | |
|---|---|---|---|
| B | 0 | | |
| C | 3.9 | | |
| E | 0 | | |

**Q901**

| | | | |
|---|---|---|---|
| B | 0 | | |
| C | 12.0 | | |
| E | 0 | | |

**Q902**

| | | | |
|---|---|---|---|
| B | 0 | | |
| C | 12.0 | | |
| E | 0 | | |

**Q903**

| | | | |
|---|---|---|---|
| B | 0.7 | | |
| C | 0 | | |
| E | 0 | | |

**Q904**

| | | | |
|---|---|---|---|
| B | 11.5 | | |
| C | 11.2 | | |
| E | 12.0 | | |

**Q905**

| | | | |
|---|---|---|---|
| B | 4.6 (4.7) | | |
| C | 5.1 (0) | | |
| E | 5.3 (5.3) | | |

**Q906**

| | | | |
|---|---|---|---|
| B | 0.8 (0) | | |
| C | 0 (4.7) | | |
| E | 0 | | |

**Q907**

| | | | |
|---|---|---|---|
| B | 3.8 | | |
| C | 4.5 | | |
| E | 3.3 | | |

**Q908**

| | | | |
|---|---|---|---|
| B | 8.2 (8.3) | | |
| C | 8.8 (0) | | |
| E | 8.9 (8.9) | | |

**Q909**

| | | | |
|---|---|---|---|
| B | 0.6 (0) | | |
| C | 0 (8.3) | | |
| E | 0 | | |

**Q910**

| | | | |
|---|---|---|---|
| B | 0 (4.5) | | |
| C | 5.1 (5.1) | | |
| E | 0.2 (4.1) | | |

**Q911**

| | | | |
|---|---|---|---|
| B | 2.2 | | |
| C | 1.8 | | |
| E | 0 | | |

**Q951**

| | | | |
|---|---|---|---|
| B | 11.6 | | |
| C | 5.5 | | |
| E | 11.9 | | |

**Q952**

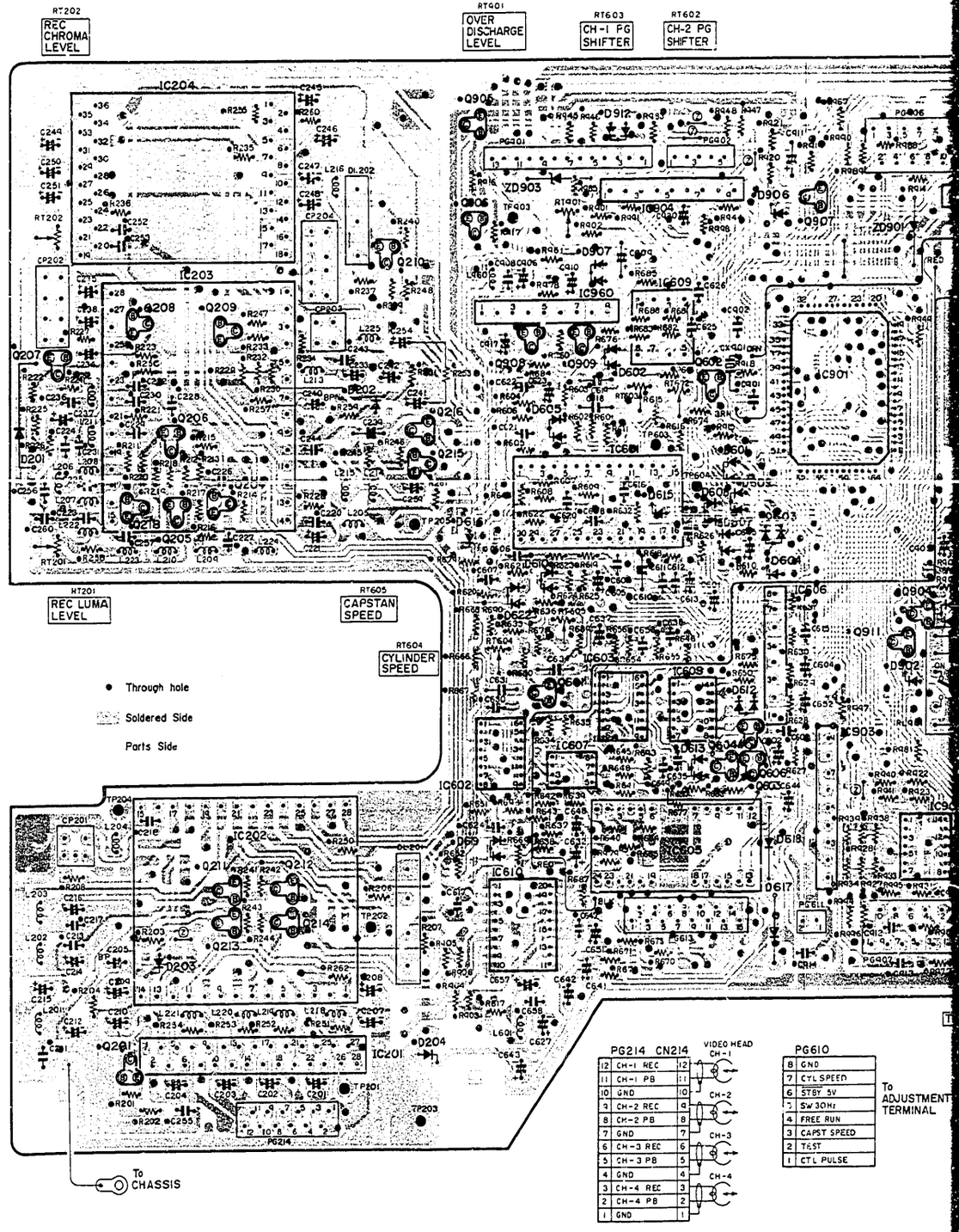
| | | | |
|---|---|---|---|
| B | 11.2 (11.5) | | |
| C | 11.9 (7.2) | | |
| E | 11.9 (11.9) | | |

**Q953**

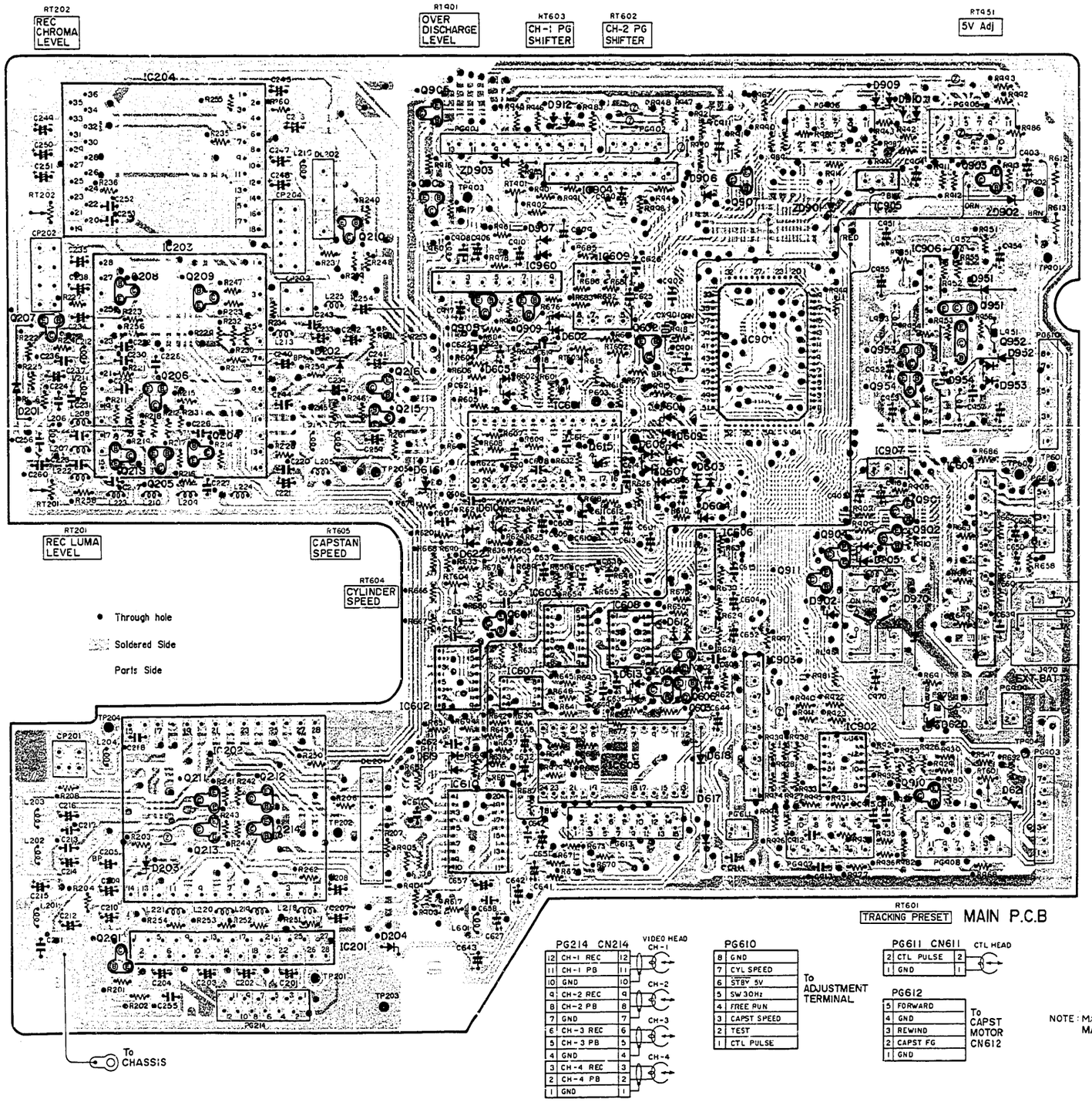
| | | | |
|---|---|---|---|
| B | 3.9 (0.2) | | |
| C | 0.2 (8.7) | | |
| E | 0 | | |

**Q954**

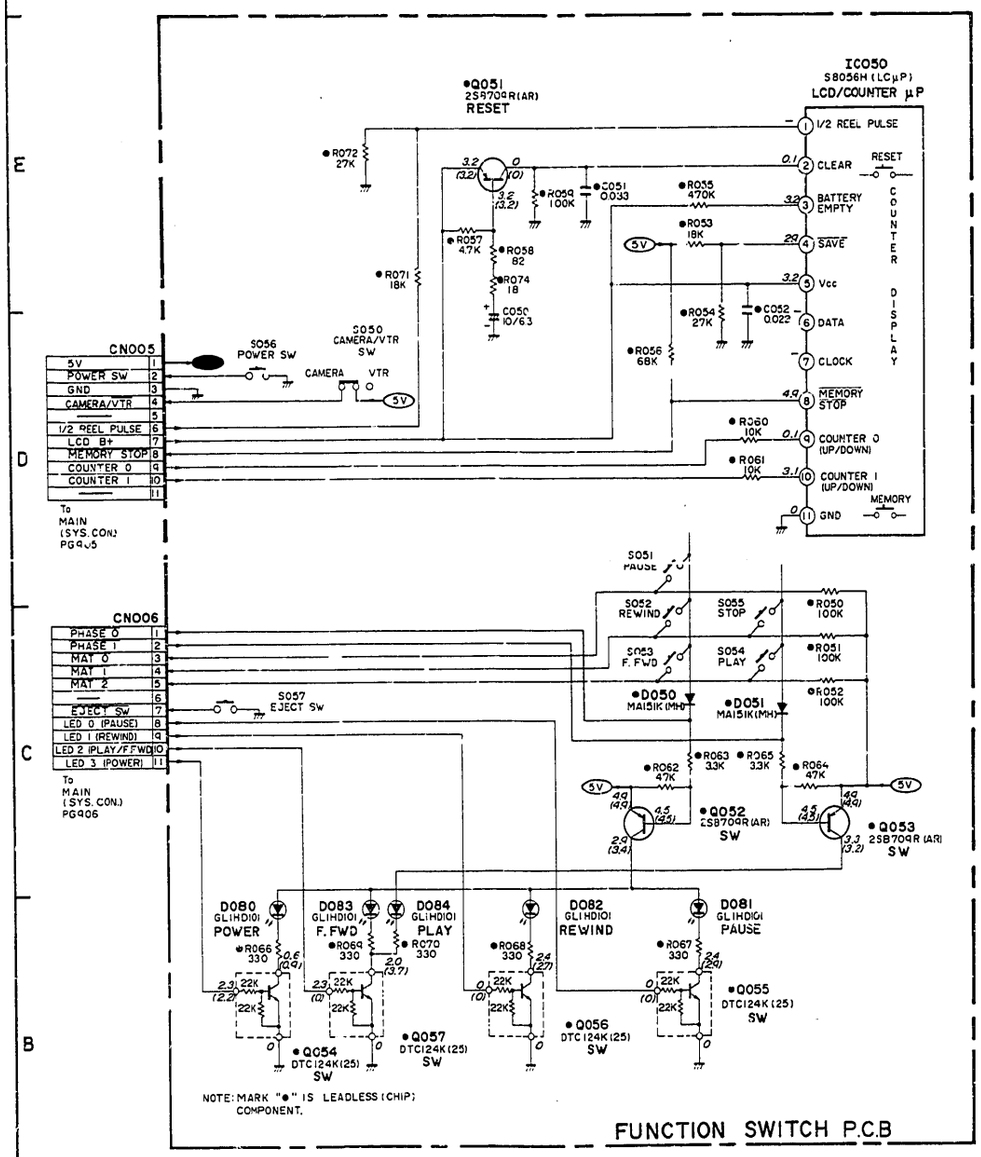
| | | | |
|---|---|---|---|
| B | 0 (4.9) | | |
| C | 3.9 (0.2) | | |
| E | 0 | | |



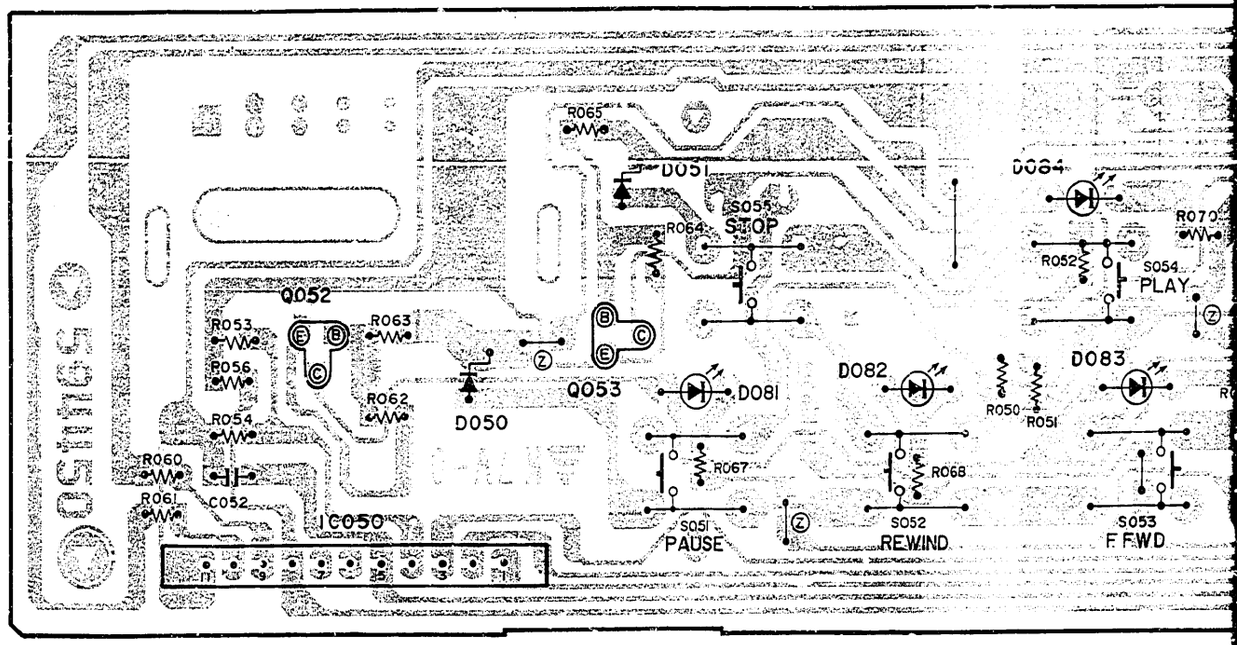
# -/CAPST.–MOTORS DRIVE, LUMA/CHROMA) CIRCUIT BOARD DIAGRAM



## FUNCTION SW SCHEMATIC DIAGRAM



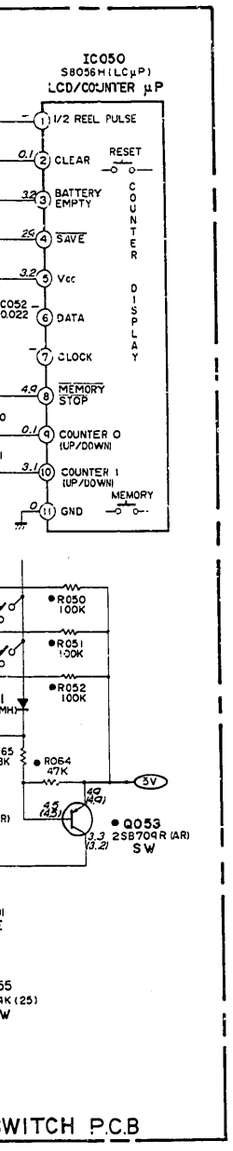

## FUNCTION SW CIRCUIT BOARD DIAGRAM



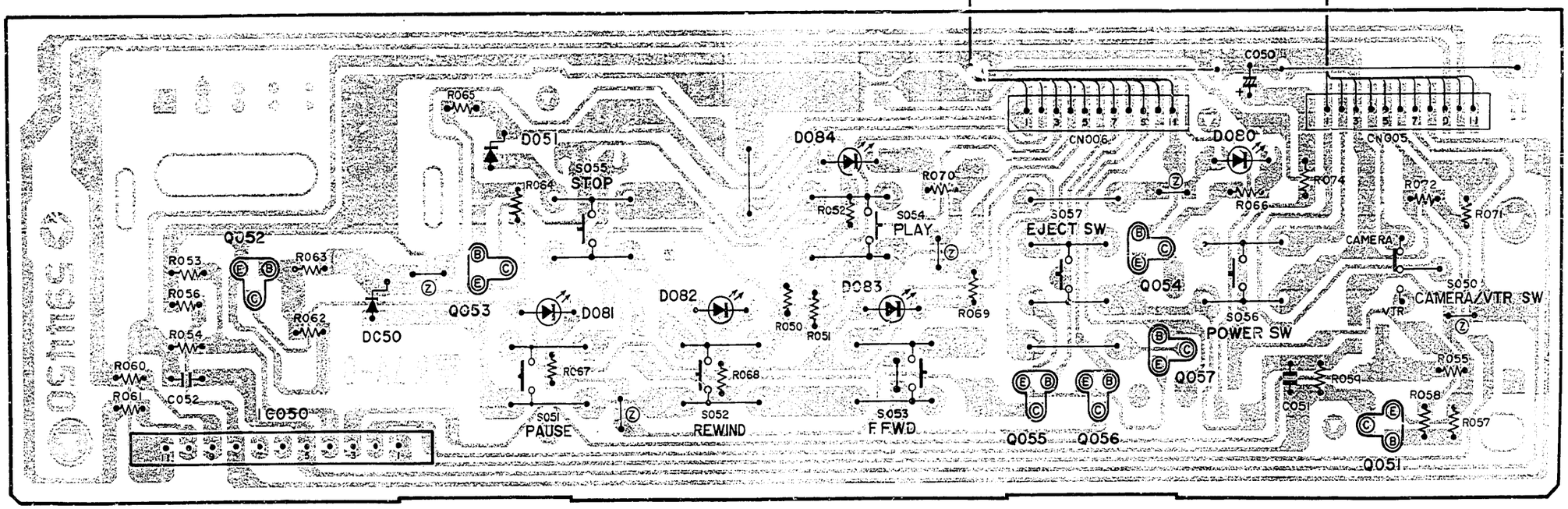

| SCHEMATIC | PAGE |
|---|---|
| PREAMP | 172 |
| PRE PROCESS | 173 |
| VIDEO PROCESS | 189 |
| DEFLECTION | 194 |
| REGULATOR | 209 |
| CAMERA SW | 208 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 216 |
| SYSTEM CONTROL | 221 |
| SERVO | 223 |
| CYL. / CAPST. MOTORS DRIVE | 231 |
| SWITCHING REGULATOR | 232 |
| LUMA CHROMA | 233 |
| FUNCTION SW | 246 |
| AUDIO | 252 |
| TROUBLE SENSOR | 279 |

※ NOTE: MARK "Ⓩ" IS LEADLESS JUMPER.

## FUNCTION SW CIRCUIT BOARD DIAGRAM




SWITCH P.C.B




FUNCTION SW P.C.B

| CN006 | |
|---|---|
| 1 | PHASE 0 |
| 2 | PHASE 1 |
| 3 | MAT 0 |
| 4 | MAT 1 |
| 5 | MAT 2 |
| 6 | —— |
| 7 | EJECT SW |
| 8 | LED 0 (PAUSE) |
| 9 | LED 1 (REWIND) |
| 10 | LED 2 (PLAY/F.FWD) |
| 11 | LED 3 (POWER) |

To MAIN (SYS.CON.) PG906

| CN005 | |
|---|---|
| 1 | 5V |
| 2 | POWER SW |
| 3 | GND |
| 4 | CAMERA/VTR |
| 5 | —— |
| 6 | 1/2 REEL PULSE |
| 7 | LCD B+ |
| 8 | MEMORY STOP |
| 9 | COUNTER 0 |
| 10 | COUNTER 1 |
| 11 | —— |

To MAIN (SYS.CON.) PG905


| SCHEMATIC | PAGE |
|---|---|
| PREAMP | 172 |
| PRE PROCESS | 173 |
| VIDEO PROCESS | 189 |
| DEFLECTION | 194 |
| REGULATOR | 200 |
| CAMERA SW | 206 |
| ELECTRONIC VIEWFINDER | 210 |
| MIC JACK | 215 |
| AUTO FOCUS | 216 |
| SYSTEM CONTROL | 221 |
| SERVO | 223 |
| CYL. - CAPST. - MOTORS DRIVE | 231 |
| SWITCHING REGULATOR | 232 |
| LUMA CHROMA | 233 |
| FUNCTION SW | 246 |
| AUDIO | 247 |
| TROUBLE SENSOR | 249 |


※ NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.

| Q051 | |
|---|---|
| B | 3.2(3.2) |
| C | 0 (0) |
| E | 3.2(3.2) |

| Q052 | |
|---|---|
| B | 4.5(4.5) |
| C | 2.9(3.4) |
| E | 4.9(4.9) |

| Q053 | |
|---|---|
| B | 4.5(4.5) |
| C | 3.3(3.2) |
| E | 4.9(4.9) |

| Q054 | |
|---|---|
| B | 2.3(2.2) |
| C | 0.6(0.9) |
| E | 0 |

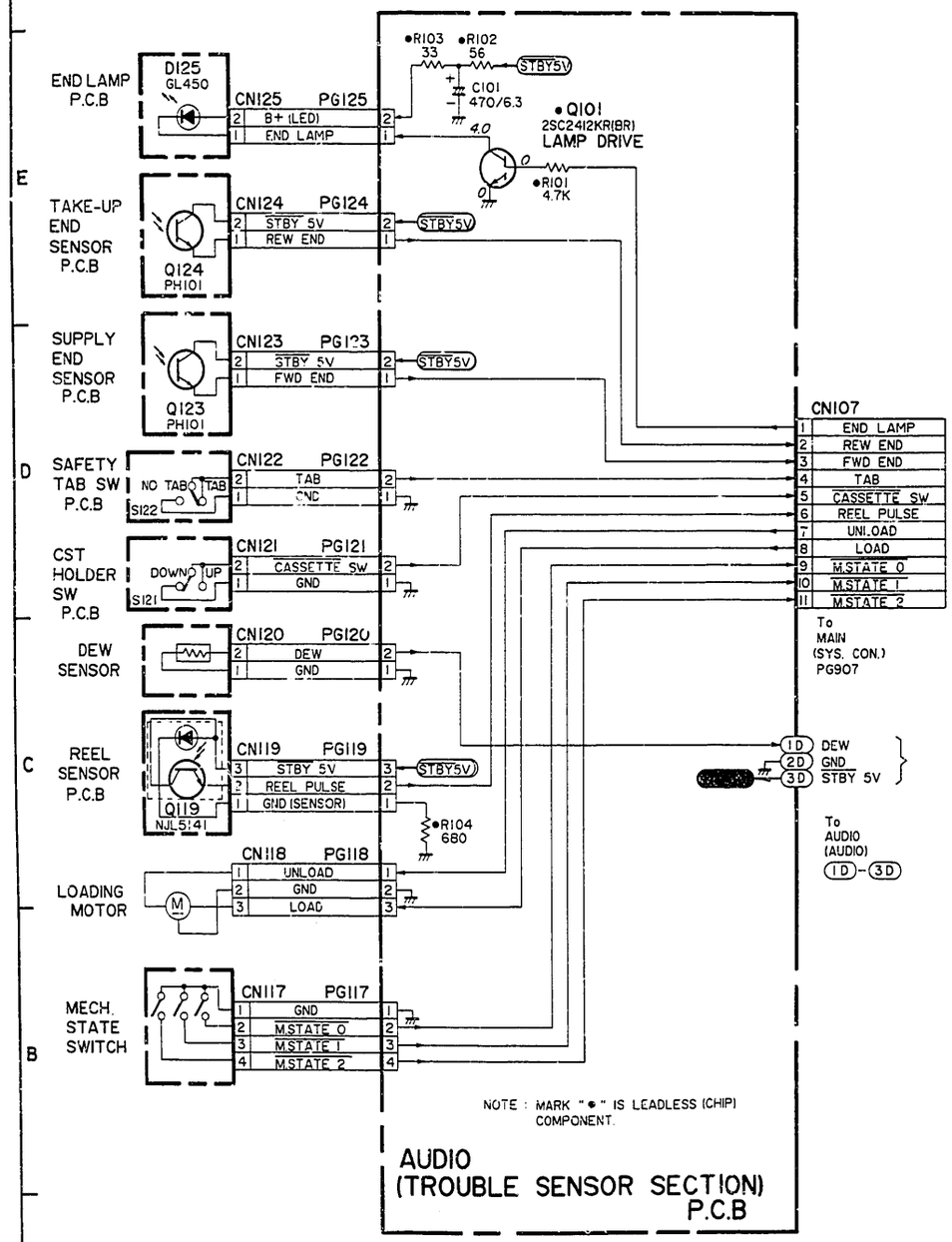
| IC050 | |
|---|---|
| 1 | - |
| 2 | 0.1 |
| 3 | 3.2 |
| 4 | 2.9 |
| 5 | 3.2 |
| 6 | - |
| 7 | - |
| 8 | 4.9 |
| 9 | 0.1 |
| 10 | 3.1 |
| 11 | 0 |

| Q055 | |
|---|---|
| B | 0 (0) |
| C | 2.4(2.9) |
| E | 0 |

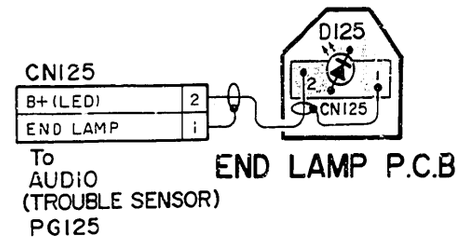
| Q056 | |
|---|---|
| B | 0 (0) |
| C | 2.4(2.7) |
| E | 0 |

| Q057 | |
|---|---|
| B | 2.3 (0) |
| C | 2.0(3.7) |
| E | 0 |

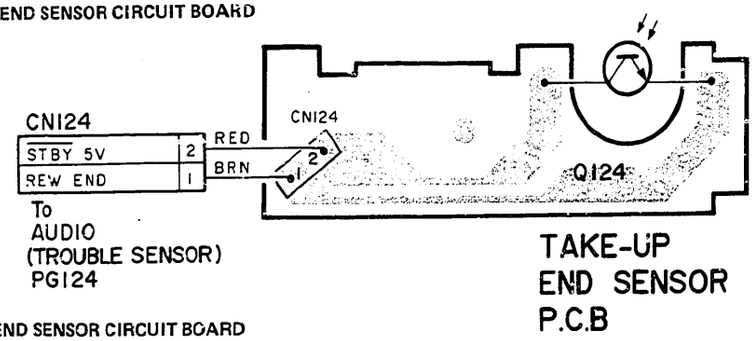
## AUDIO (TROUBLE SENSOR) SCHEMATIC DIAGRAM



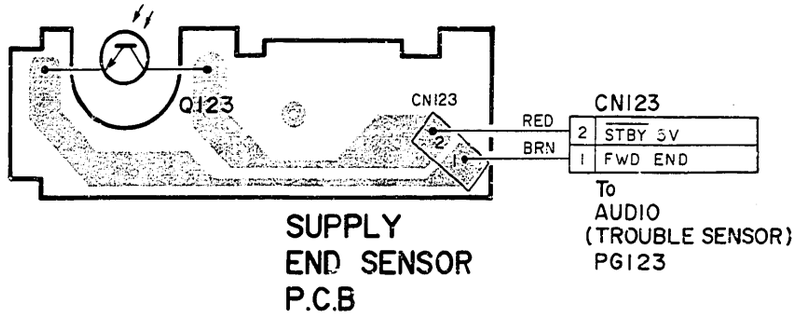

• END LAMP CIRCUIT BOARD



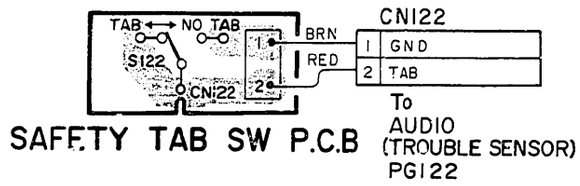

• TAKE-UP END SENSOR CIRCUIT BOARD



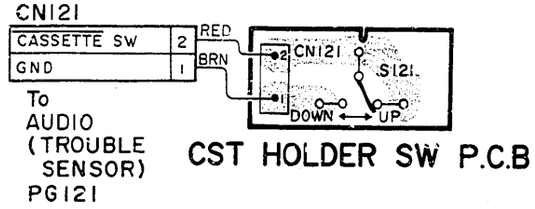

• SUPPLY END SENSOR CIRCUIT BOARD



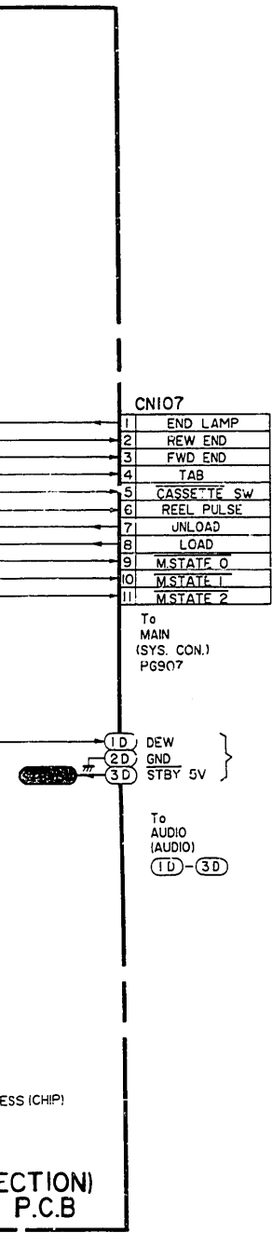

• SAFETY TAB SW CIRCUIT BOARD



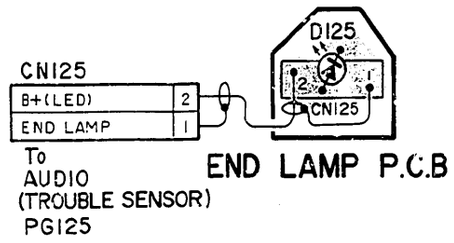

• CASSETTE HOLDER SW CIRCUIT BOARD



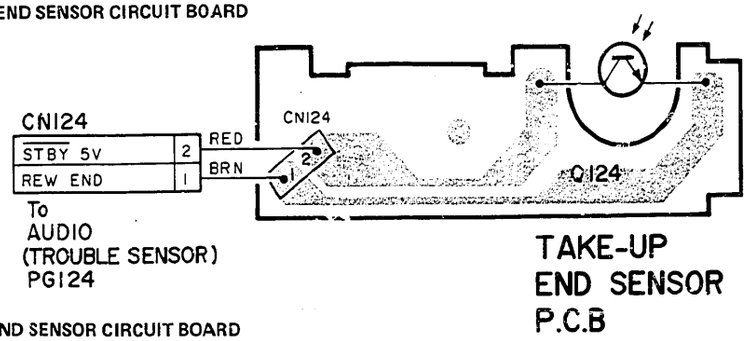

SCHEMATIC
PREAMP
PRE PROCESS
VIDEO PROCESS
DEFLECTION
REGULATOR
CAMERA SW
ELECTRONIC VIEWFINDER
MIC JACK
AUTO FOCUS



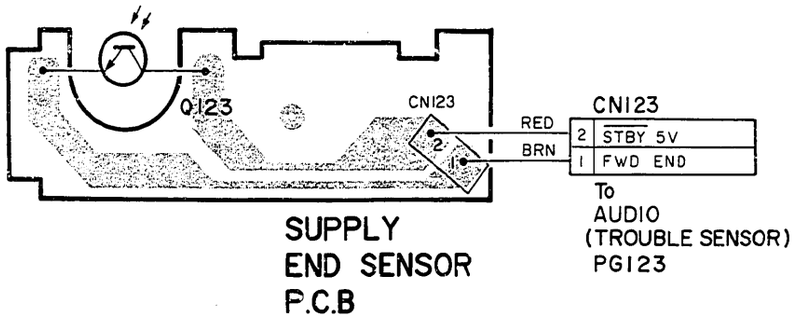

• END LAMP CIRCUIT BOARD



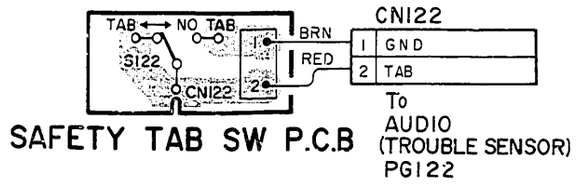

• TAKE-UP END SENSOR CIRCUIT BOARD



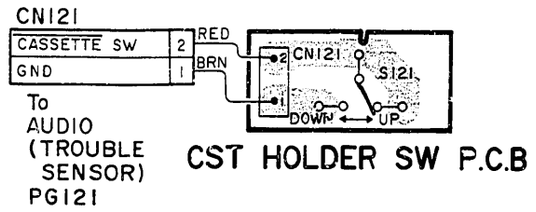

• SUPPLY END SENSOR CIRCUIT BOARD



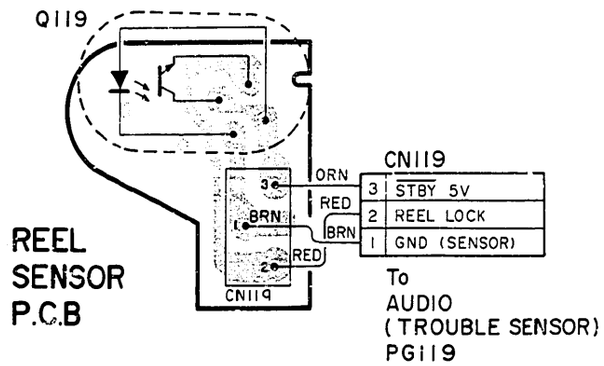

• SAFETY TAB SW CIRCUIT BOARD




• CASSETTE HOLDER SW CIRCUIT BOARD



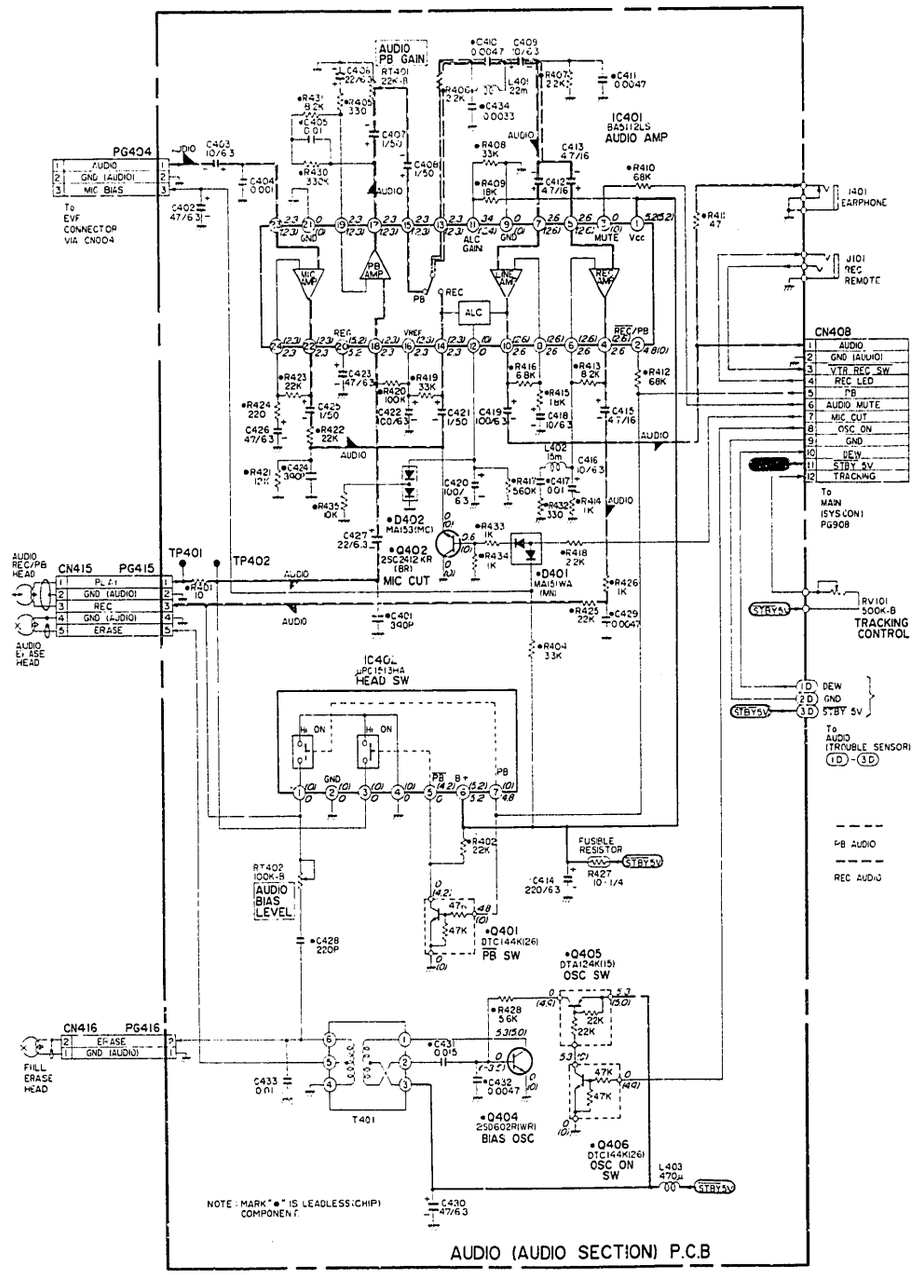

REES SENSOR CIRCUIT BOARD





| SCHEMATIC | PAGE | SCHEMATIC | PAGE |
|---|---|---|---|
| PREAMP | 172 | SYSTEM CONTROL | 221 |
| PRE PROCESS | 173 | SERVO | 223 |
| VIDEO PROCESS | 189 | CYL - / CAPST - MOTORS DRIVE | 231 |
| DEFLECTION | 194 | SWITCHING REGULATOR | 232 |
| REGULATOR | 200 | LUMA/CHROMA | 233 |
| CAMERA SW | 206 | FUNCTION SW | 246 |
| ELECTRONIC VIEWFINDER | 210 | AUDIO | 252 |
| MIC JACK | 215 | TROUBLE SENSOR | 249 |
| AUTO FOCUS | 216 | | |

## AUDIO SCHEMATIC DIAGRAM



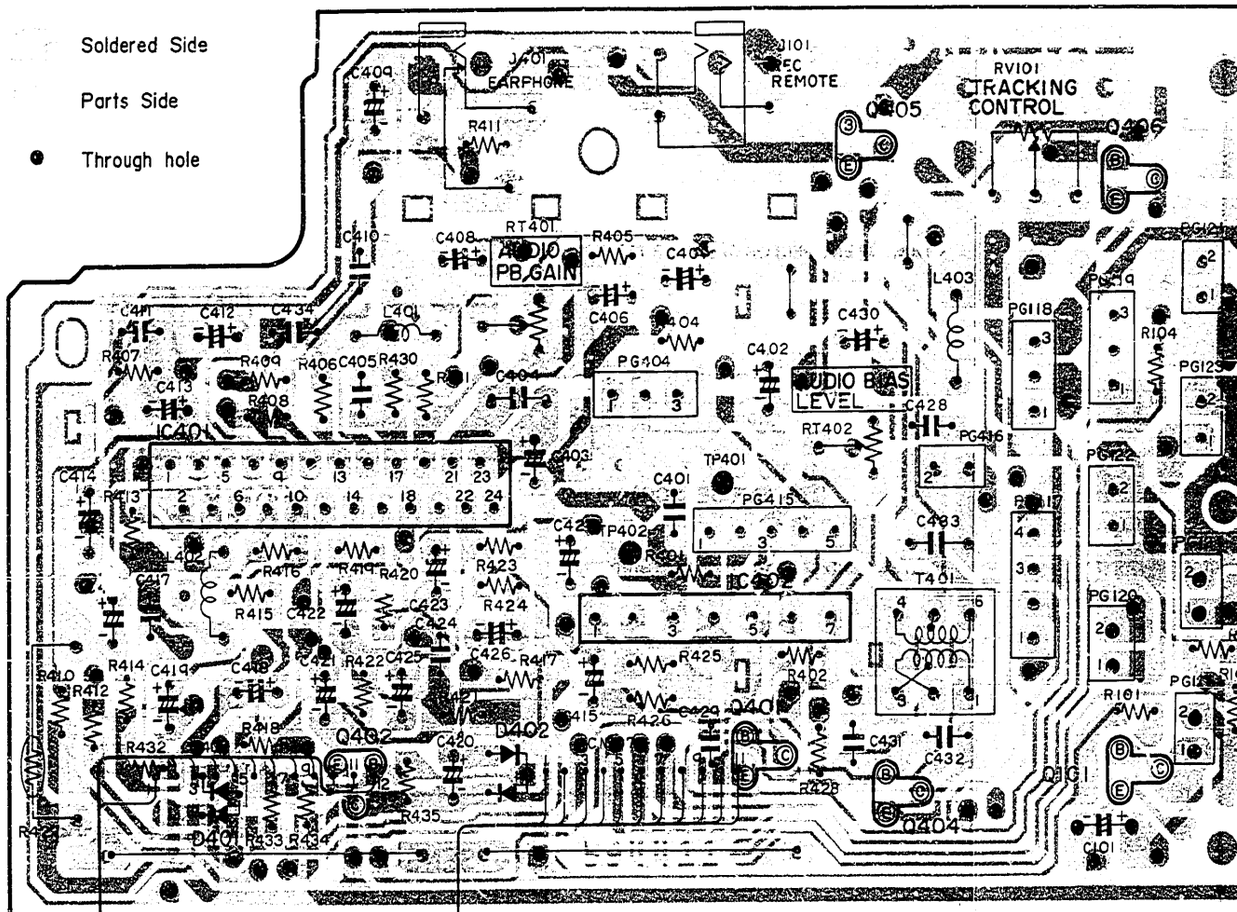

| SCHEMATIC | PAGE | SCHEMATIC | PAGE |
|---|---|---|---|
| PREAMP | 172 | SYSTEM CONTROL | 221 |
| PB PROCESS | 173 | SERVO | 229 |
| VIDEO PROCESS | 189 | CYL. / CAPST. MOTORS DRIVE | 231 |
| DEFLECTION | 194 | SWITCHING REGULATOR | 232 |
| REGULATOR | 200 | LUMA CHROMA | 233 |
| CAMERA SW | 208 | FUNCTION SW | 246 |
| ELECTRONIC VIEWFINDER | 210 | AUDIO | 252 |
| MIC JACK | 215 | TROUBLE SENSOR | 249 |
| AUTO FOCUS | 216 | | |

## AUDIO CIRCUIT BOARD

Soldered Side

Parts Side

● Through hole




## AUDIO P.C.B

**CN408** — To MAIN (SYS. CON.) PG908

| | |
|---|---|
| 1 | AUDIO |
| 2 | GND (AUDIO) |
| 3 | VTR REC SW |
| 4 | REC LED |
| 5 | PB |
| 6 | AUDIO MUTE |
| 7 | MIC CUT |
| 8 | OSC ON |
| 9 | GND |
| 10 | DEW |
| 11 | STBY 5V |
| 12 | TRACKING |

**CN107** — To MAIN (SYS. CON.) PG907

| | |
|---|---|
| 1 | END LAMP |
| 2 | REW END |
| 3 | FWD END |
| 4 | NO TAB |
| 5 | CASSETTE SW |
| 6 | REEL PULSE |
| 7 | UNLOAD |
| 8 | LOAD |
| 9 | M. STATE 0 |
| 10 | M. STATE 1 |
| 11 | M. STATE 2 |

**PG117** — To MECH STATE SWITCH CN117

| | |
|---|---|
| 4 | M. STATE 2 |
| 3 | M. STATE 1 |
| 2 | M. STATE 0 |
| 1 | GND |

**PG118** — To LOADING MOTOR CN118

| | |
|---|---|
| 3 | LOAD |
| 2 | GND |
| 1 | UNLOAD |

**Q101**

| | |
|---|---|
| B | 0 |
| C | 4.0 |
| E | 0 |

**Q401**

| | |
|---|---|
| B | 4.8 (0) |
| C | 0 (4.2) |
| E | 0 |

**Q402**

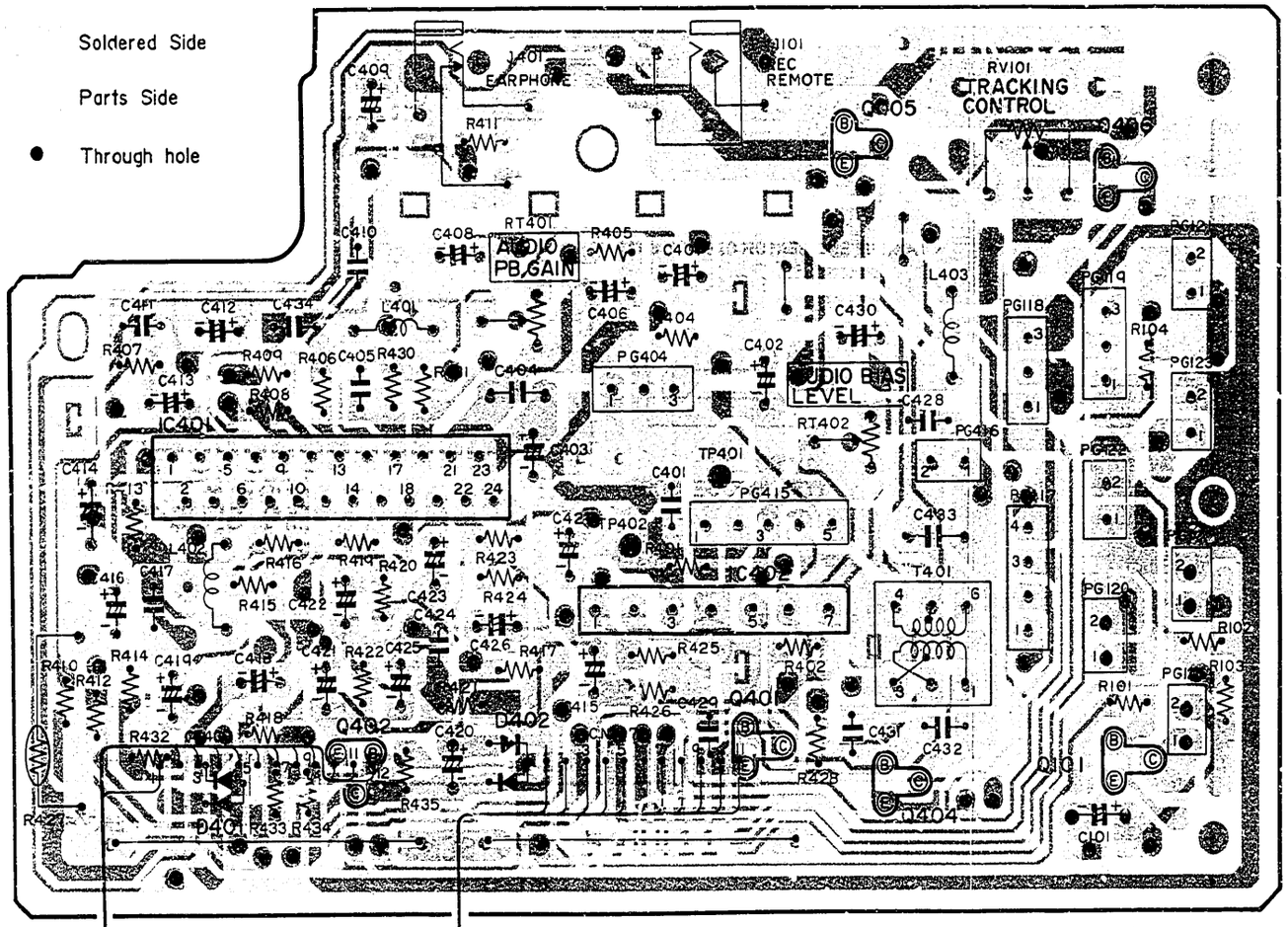
| | |
|---|---|
| B | 0.6 (0) |
| C | 0 |
| E | 0 |

## AUDIO CIRCUIT BOARD

Soldered Side

Parts Side

● Through hole




AUDIO P.C.B

### CN408

| | |
|---|---|
| 1 | AUDIO |
| 2 | GND (AUDIO) |
| 3 | $\overline{\text{VTR REC SW}}$ |
| 4 | REC LED |
| 5 | PB |
| 6 | AUDIO MUTE |
| 7 | MIC CUT |
| 8 | OSC ON |
| 9 | GND |
| 10 | DEW |
| 11 | $\overline{\text{STBY 5V}}$ |
| 12 | TRACKING |

To MAIN (SYS. CON.) PG908

### CN107

| | |
|---|---|
| 1 | END LAMP |
| 2 | REW END |
| 3 | FWD END |
| 4 | $\overline{\text{NO TAB}}$ |
| 5 | CASSETTE SW |
| 6 | REEL PULSE |
| 7 | UNLOAD |
| 8 | LOAD |
| 9 | $\overline{\text{M. STATE 0}}$ |
| 10 | $\overline{\text{M. STATE 1}}$ |
| 11 | $\overline{\text{M. STATE 2}}$ |

To MAIN (SYS. CON.) PG907

### PG117

| | |
|---|---|
| 4 | $\overline{\text{M. STATE 2}}$ |
| 3 | $\overline{\text{M. STATE 1}}$ |
| 2 | $\overline{\text{M. STATE 0}}$ |
| 1 | GND |

To MECH STATE SWITCH CN117

### PG118

| | |
|---|---|
| 3 | LOAD |
| 2 | GND |
| 1 | UNLOAD |

To LOADING MOTOR CN118

### PG120

| | |
|---|---|
| 2 | DEW |
| 1 | GND |

To DEW SENSOR CN120

### PG121

| | |
|---|---|
| 2 | CASSETTE SW |
| 1 | GND |

To CST HOLDER SW CN121

### PG122

| | |
|---|---|
| 2 | TAB |
| 1 | GND |

To SAFETY TAB SW CN122

### PG123

| | |
|---|---|
| 2 | $\overline{\text{STBY 5V}}$ |
| 1 | FWD END |

To SUPPLY END SENSOR CN123

### PG124

| | |
|---|---|
| 2 | $\overline{\text{STBY 5V}}$ |
| 1 | REW END |

To TAKE-UP END SENSOR CN124

### PG119

| | |
|---|---|
| 3 | $\overline{\text{STBY 5V}}$ |
| 2 | REEL PULSE |
| 1 | GND (SENSOR) |

To REEL SENSOR CN119

### PG404

| | |
|---|---|
| 3 | MIC BIAS |
| 2 | GND (AUDIO) |
| 1 | AUDIO |

To EVF CONNECTOR VIA CN004

### PG415 CN415

AUDIO REC/PB HEAD

| | |
|---|---|
| 1 | PLAY |
| 2 | GND (AUDIO) |
| 3 | RECORD |
| 4 | GND (AUDIO) |
| 5 | ERASE |

AUDIO ERASE HEAD

### PG416 CN416

| | |
|---|---|
| 2 | ERASE |
| 1 | GND (AUDIO) |

FULL ERASE HEAD

### PG125

| | |
|---|---|
| 2 | B + (LED) |
| 1 | END LAMP |

To END LAMP CN125

### IC401

| | | | |
|---|---|---|---|
| 1 | 5.2(5.2) | 13 | 2.3(2.3) |
| 2 | 4.8(4.8) | 14 | 2.3(2.3) |
| 3 | 0 (0) | 15 | 2.3(2.3) |
| 4 | 2.6(2.6) | 16 | 2.3(2.3) |
| 5 | 2.6(2.6) | 17 | 2.3(2.3) |
| 6 | 2.6(2.6) | 18 | 2.3(2.3) |
| 7 | 2.6(2.6) | 19 | 2.3(2.3) |
| 8 | 2.6(2.6) | 20 | 5.2(5.2) |
| 9 | 0 (0) | 21 | 0 (0) |
| 10 | 2.6(2.6) | 22 | 2.3(2.3) |
| 11 | 3.4(3.4) | 23 | 2.3(2.3) |
| 12 | 0 (0) | 24 | 2.3(2.3) |

### IC402

| | |
|---|---|
| 1 | 0 (0) |
| 2 | 0 (0) |
| 3 | 0 (0) |
| 4 | 0 (0) |
| 5 | 0 (4.2) |
| 6 | 5.2(5.2) |
| 7 | 4.8 (0) |

### Q101

| | |
|---|---|
| B | 0 |
| C | 4.0 |
| E | 0 |

### Q401

| | |
|---|---|
| B | 4.8 (0) |
| C | 0 (4.2) |
| E | 0 |

### Q402

| | |
|---|---|
| B | 0.6 (0) |
| C | 0 |
| E | 0 |

### Q404

| | |
|---|---|
| B | 0 (-3.5) |
| C | 5.3 (5.0) |
| E | 0 |

### Q405

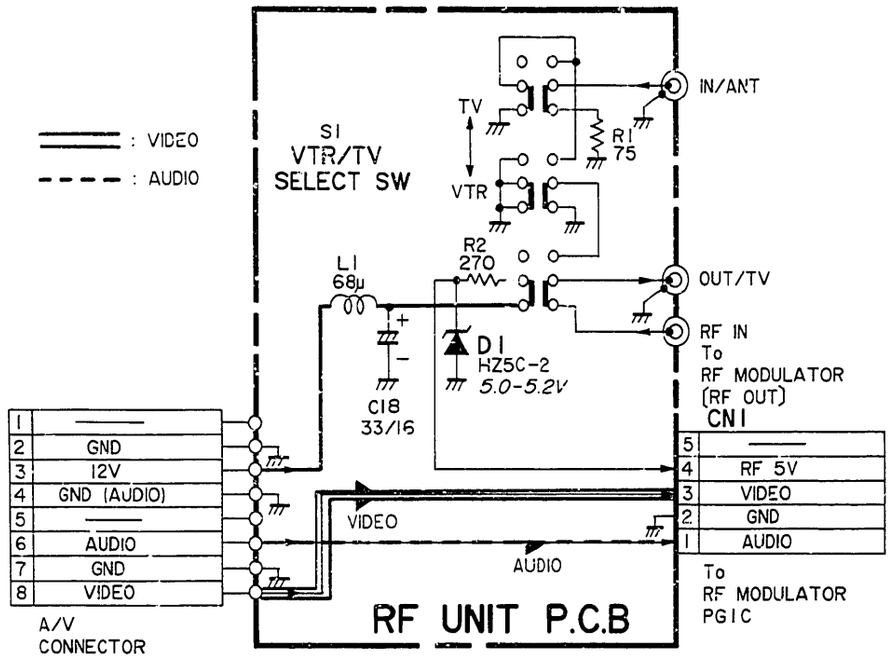
| | |
|---|---|
| B | 5.3 (0) |
| C | 0 (4.9) |
| E | 5.3 (5.0) |

### Q406

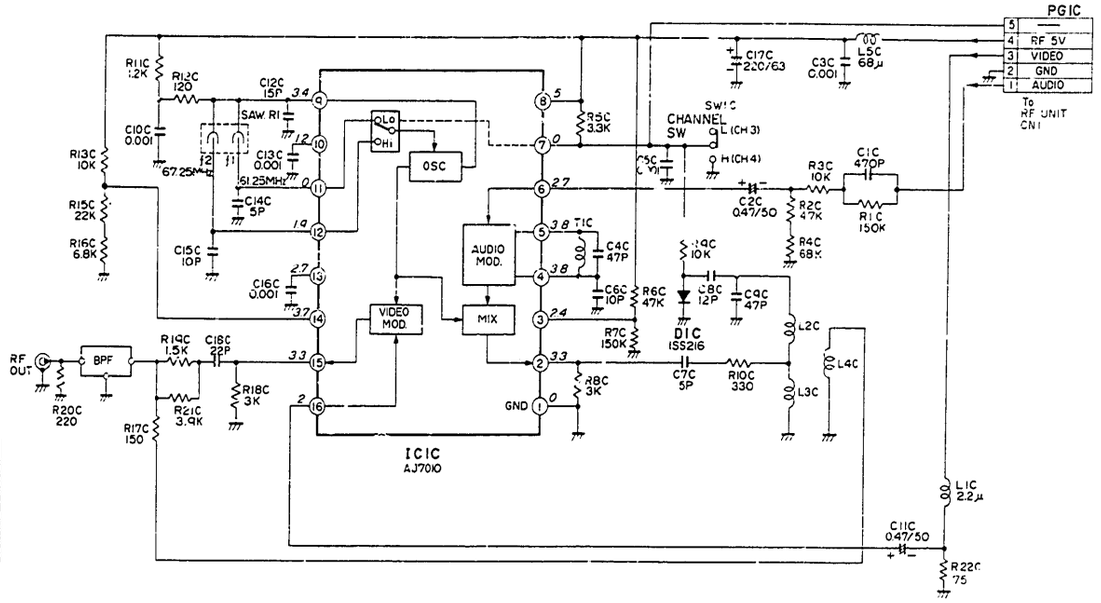
| | |
|---|---|
| B | 0 (4.9) |
| C | 5.3 (0) |
| E | 0 |

4 5 6 7 8 9 10 11 12

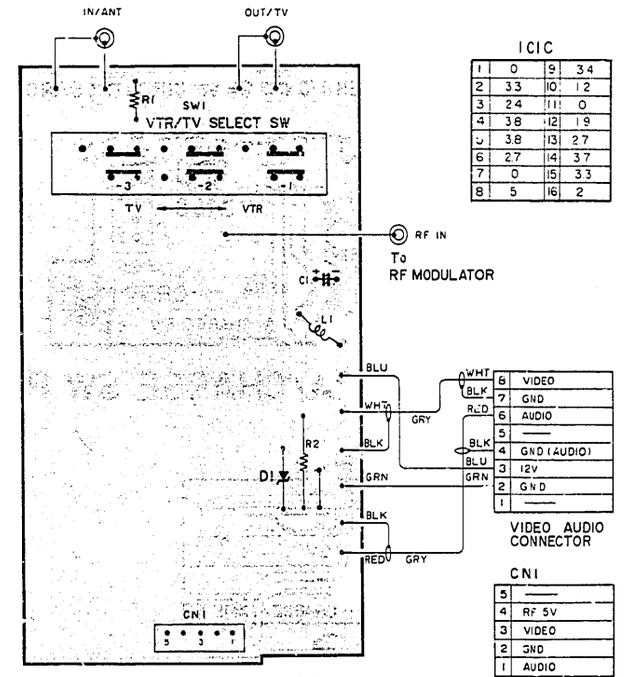
## RF UNIT (VM-RF20A) SCHEMATIC DIAGRAM




## RF MODULATOR SCHEMATIC DIAGRAM




## RF UNIT (VM-RF-20A) CIRCUIT BOARD DIAGRAM




ICIC

| | | | |
|---|---|---|---|
| 1 | 0 | 9 | 34 |
| 2 | 33 | 10 | 12 |
| 3 | 24 | 11 | 0 |
| 4 | 38 | 12 | 19 |
| 5 | 38 | 13 | 27 |
| 6 | 27 | 14 | 37 |
| 7 | 0 | 15 | 33 |
| 8 | 5 | 16 | 2 |

VIDEO AUDIO CONNECTOR

| | |
|---|---|
| 6 | VIDEO |
| 7 | GND |
| 6 | AUDIO |
| 5 | — |
| 4 | GND (AUDIO) |
| 3 | 12V |
| 2 | GND |
| 1 | — |

CN1

| | |
|---|---|
| 5 | — |
| 4 | RF 5V |
| 3 | VIDEO |
| 2 | GND |
| 1 | AUDIO |

To
RF MODULATOR
PG1C

A/V INPUT

• SCHEMATIC

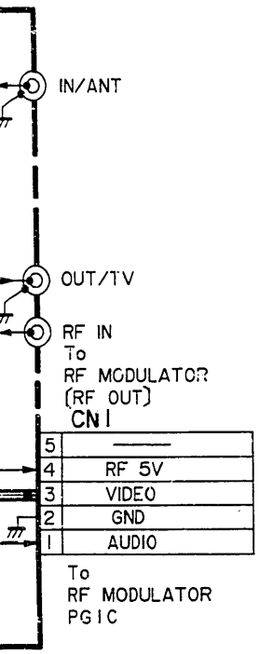
| |
|---|
| AUDIO |
| GND (AUDIO |
| MIC BIAS |
| — |
| GND |
| VIDEO (CHARA. |
| — |
| — |
| — |
| A/V CONT. |
| — |
| — |

EVF
CONNECTOR

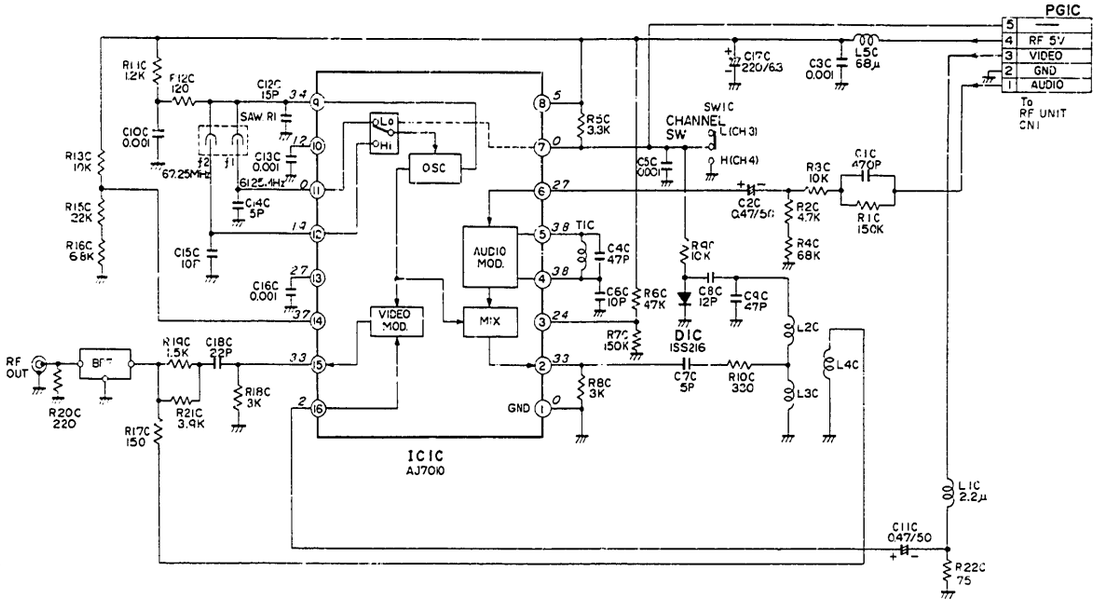
REMOTE CO

• SCHEMATIC

PLUG

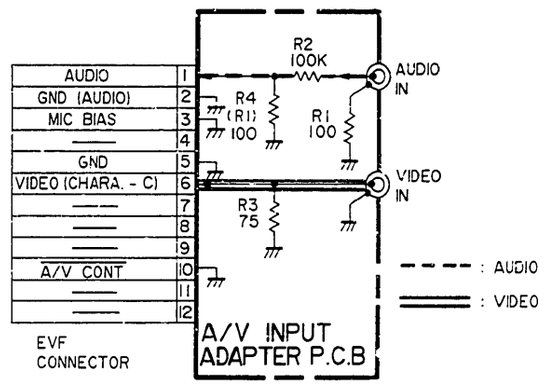



## RF MODULATOR SCHEMATIC DIAGRAM

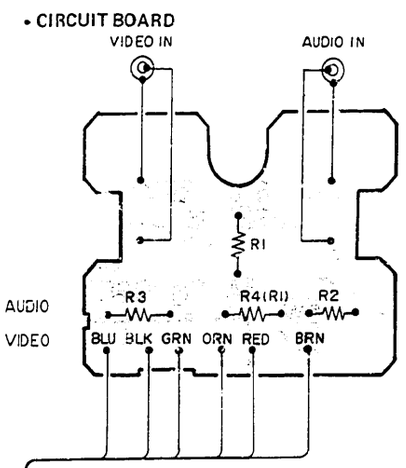



## A/V INPUT ADAPTOR (VM-CH20)

• SCHEMATIC



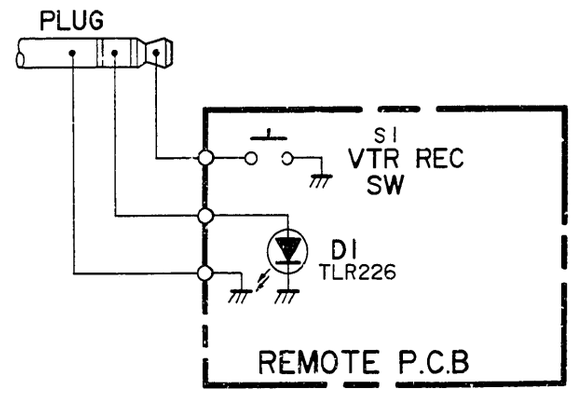

• CIRCUIT BOARD



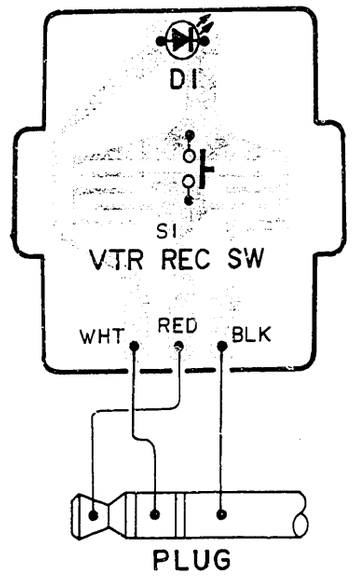

| | | |
|---|---|---|
| BRN | 1 | AUDIO |
| RED | 2 | GND (AUDIO) |
| ORN | 3 | MIC BIAS |
| | 4 | — |
| GRN | 5 | GND |
| BLU | 6 | VIDEO(CHRA.-C) |
| | 7 | — |
| | 8 | — |
| | 9 | — |
| BLK | 10 | A/V CONT. |
| | 11 | — |
| | 12 | — |

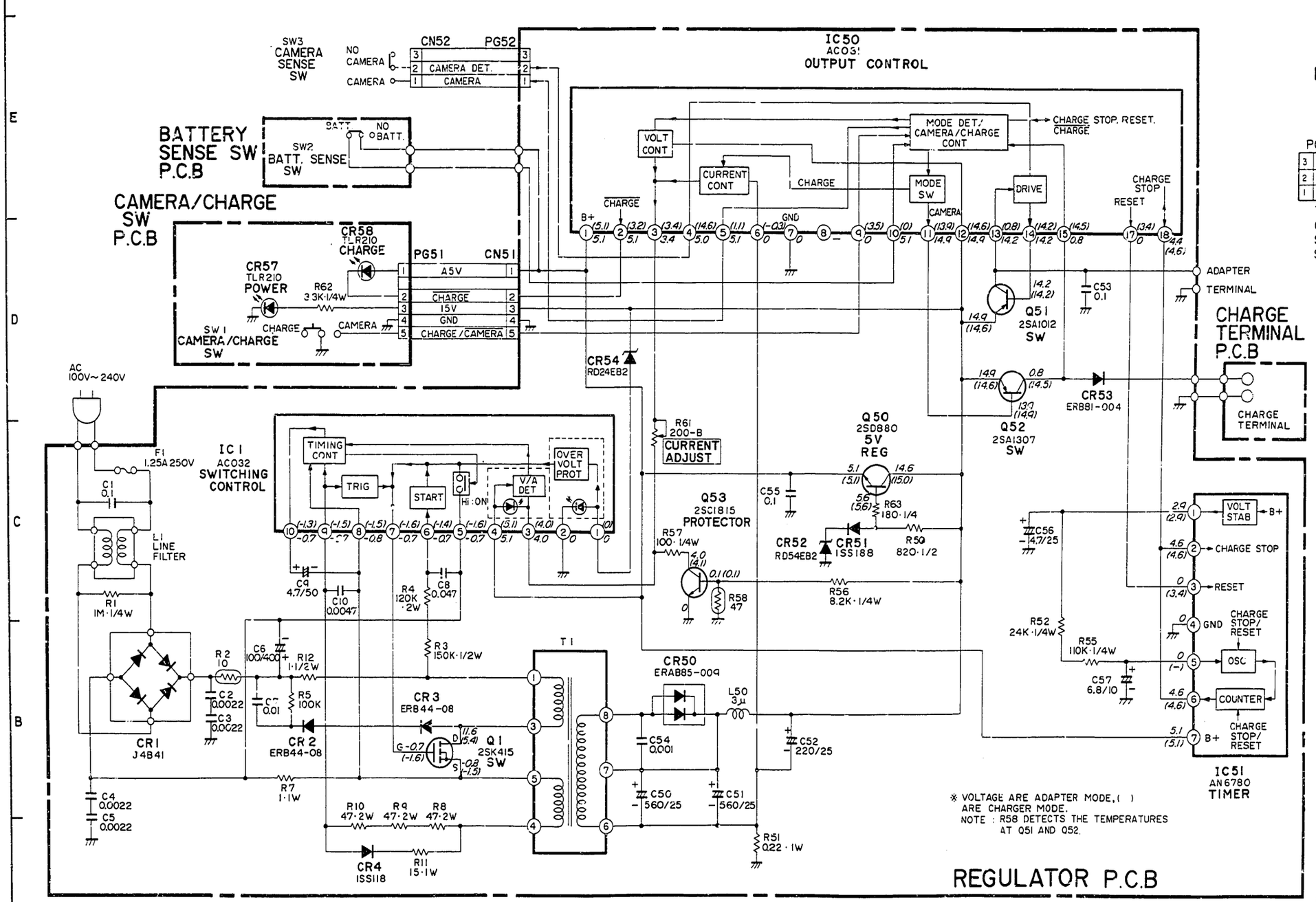
## REMOTE CONTROL (VM-RM20)

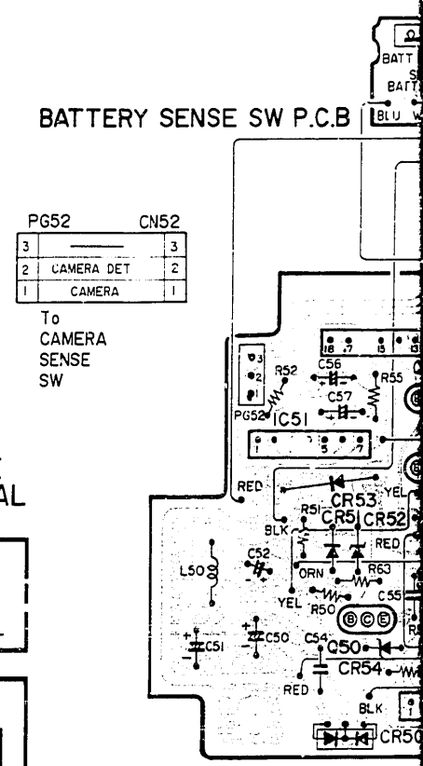
• SCHEMATIC




• CIRCUIT BOARD





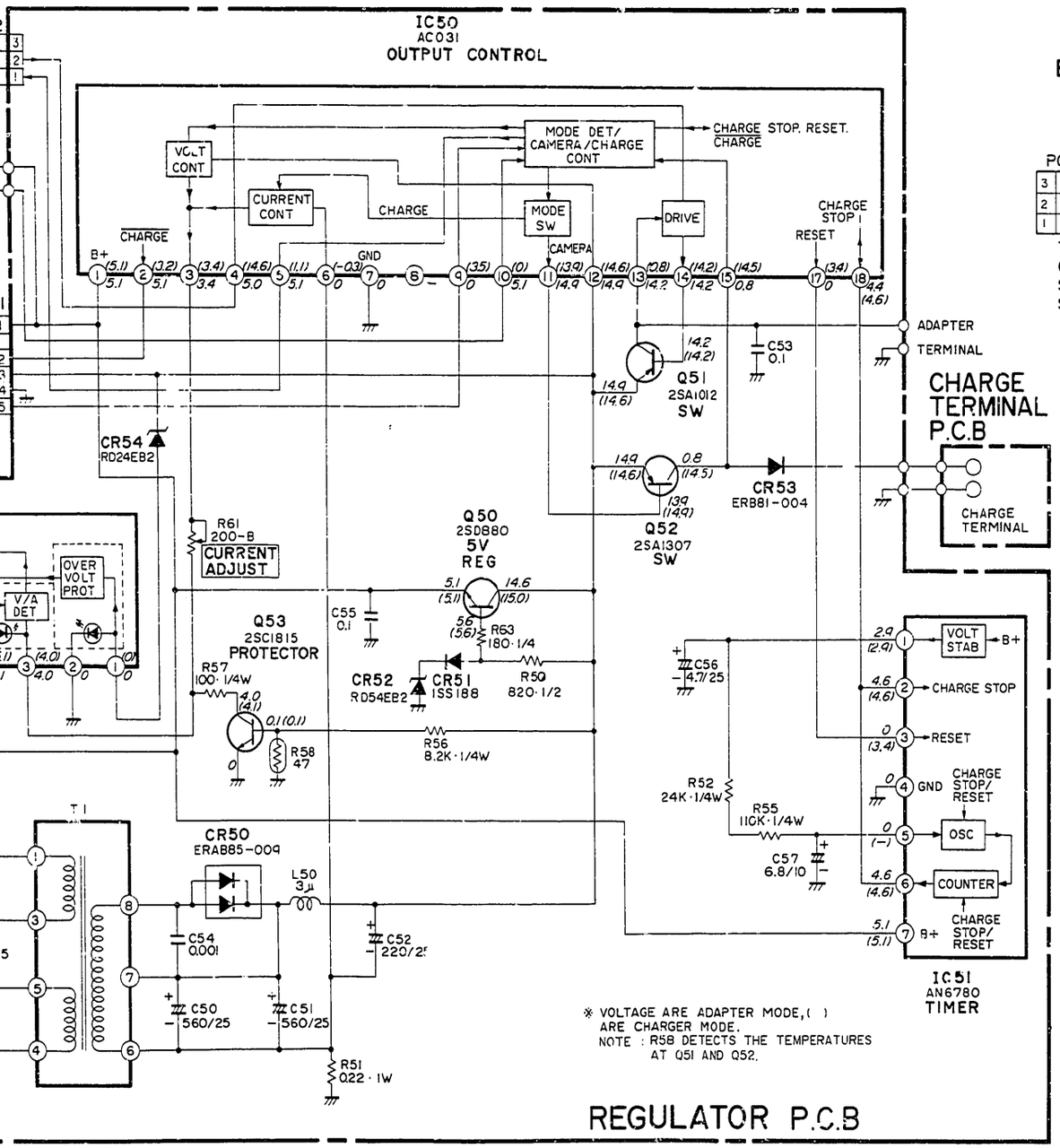




| IC1 | |
|---|---|
| 1 | 0 (0) |
| 2 | 0 |
| 3 | 4.0(4.0) |
| 4 | 5.1(5.1) |
| 5 | -0.7(-1.6) |
| 6 | -0.7(-1.4) |
| 7 | -0.7(-1.6) |
| 8 | -0.8(-1.5) |
| 9 | -0.7(-1.5) |
| 10 | -0.7(-1.3) |

| IC50 | | | |
|---|---|---|---|
| 1 | 5.1(5.1) | 10 | 5.1 |
| 2 | 5.1(3.2) | 11 | 14.9 |
| 3 | 3.4(3.4) | 12 | 14.9 |
| 4 | 5.0(14.6) | 13 | 14.2 |
| 5 | 5.1(1.1) | 14 | 14.2 |
| 6 | 0(-0.3) | 15 | 0.8(0.8) |
| 7 | 0 | 16 | - |
| 8 | - | 17 | 0(3.4) |
| 9 | 0 (3.5) | 18 | 4.4(4.6) |

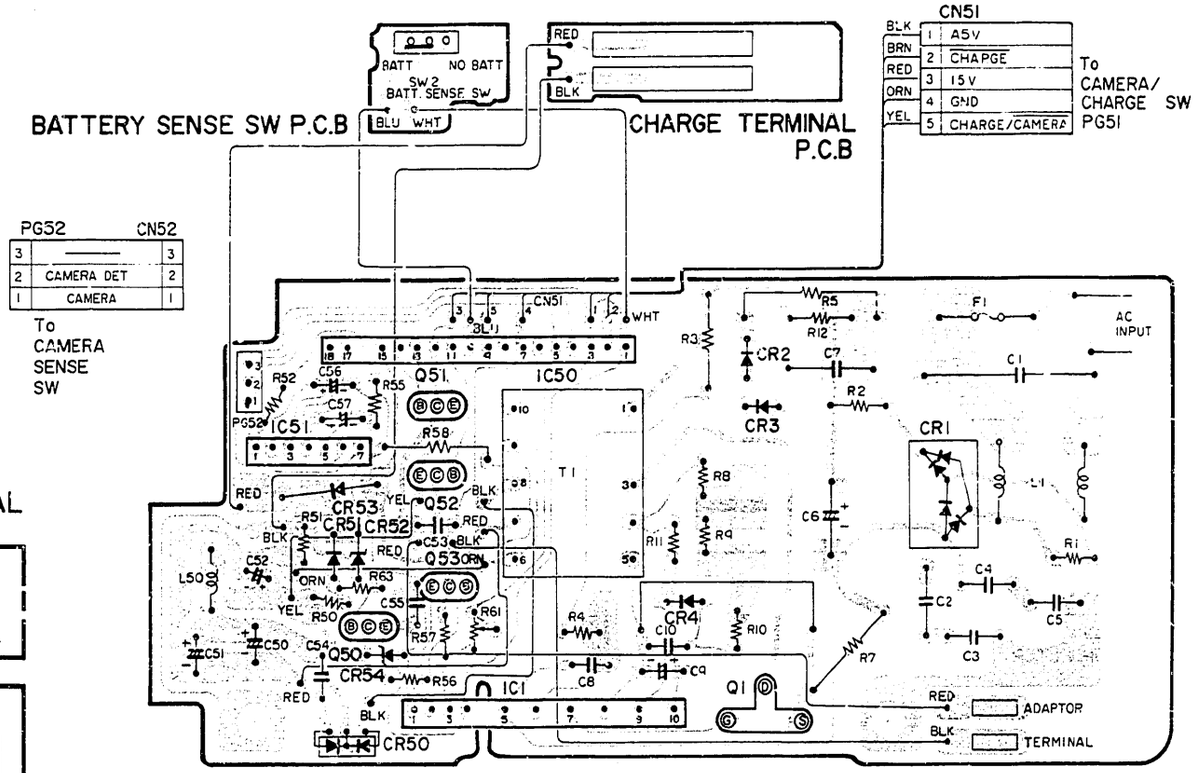
| Q1 | |
|---|---|
| D | 11.6(5.4) |
| G | -0.7(-1.6) |
| S | -0.8(-1.5) |

| Q50 | |
|---|---|
| B | 5.6(5.6) |
| C | 14.6(15.0) |
| E | 5.1(5.1) |



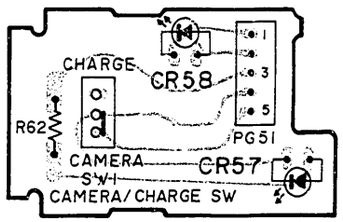

REGULATOR P.C.B

REGULATOR·BATTERY SENSOR SW·CHARGE TERMINAL CIRCUIT BOARD




REGULATOR P.C.B

CAMERA/CHARGE SW CIRCUIT BOARD




CAMERA/CHARGE SW P.C.B

IC1

| | |
|---|---|
| 1 | 0 (0) |
| 2 | 0 |
| 3 | 4.0(4.0) |
| 4 | 5.1(5.1) |
| 5 | -0.7(-1.6) |
| 6 | -0.7(-1.4) |
| 7 | -0.7(-1.6) |
| 8 | -0.8(-1.5) |
| 9 | -0.7(-1.5) |
| 10 | -0.7(-1.3) |

IC50

| | | | |
|---|---|---|---|
| 1 | 5.1(5.1) | 10 | 5.1(0) |
| 2 | 5.1(3.2) | 11 | 14.9(13.9) |
| 3 | 3.4(3.4) | 12 | 14.9(14.6) |
| 4 | 5.0(14.6) | 13 | 14.2(0.8) |
| 5 | 5.1(1.1) | 14 | 14.2(14.2) |
| 6 | 0(-0.3) | 15 | 0.8(14.5) |
| 7 | 0 | 16 | - |
| 8 | - | 17 | 0(3.4) |
| 9 | 0 (3.5) | 18 | 4.4(4.6) |

IC51

| | |
|---|---|
| 1 | 2.9(2.9) |
| 2 | 4.6(4.6) |
| 3 | 0(3 4) |
| 4 | 0 |
| 5 | 0(-) |
| 6 | 4.6(4.6) |
| 7 | 5.1(5.1) |

Q52

| | |
|---|---|
| B | 13.9(14.9) |
| C | 0.8(14.5) |
| E | 14.9(14.6) |

PG51

| | |
|---|---|
| 1 | A5V |
| 2 | CHARGE |
| 3 | 15V |
| 4 | GND |
| 5 | CHARGE/CAMERA |

To REGULATOR CN51

Q1

| | |
|---|---|
| D | 11.6(5.4) |
| G | -0.7(-1.6) |
| S | -0.8(-1.5) |

Q50

| | |
|---|---|
| B | 5.6(5.6) |
| C | 14.6(15.0) |
| E | 5.1(5.1) |

Q51

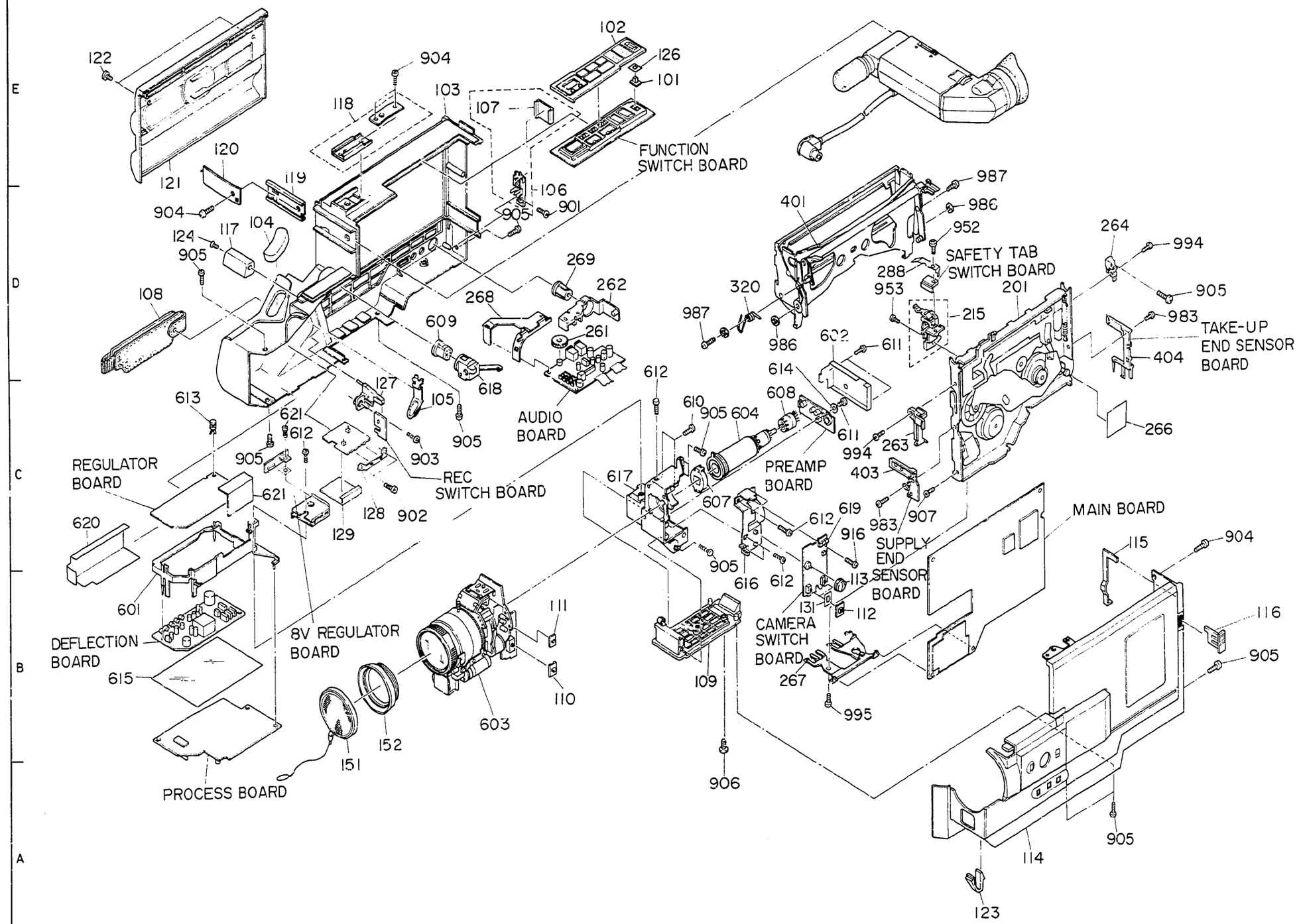
| | |
|---|---|
| B | 14.2(14.2) |
| C | - |
| E | 14.9(14.6) |

Q53

| | |
|---|---|
| B | 0.1(0.1) |
| C | 4.0(4.1) |
| E | 0 |

## EXPLODED VIEWS

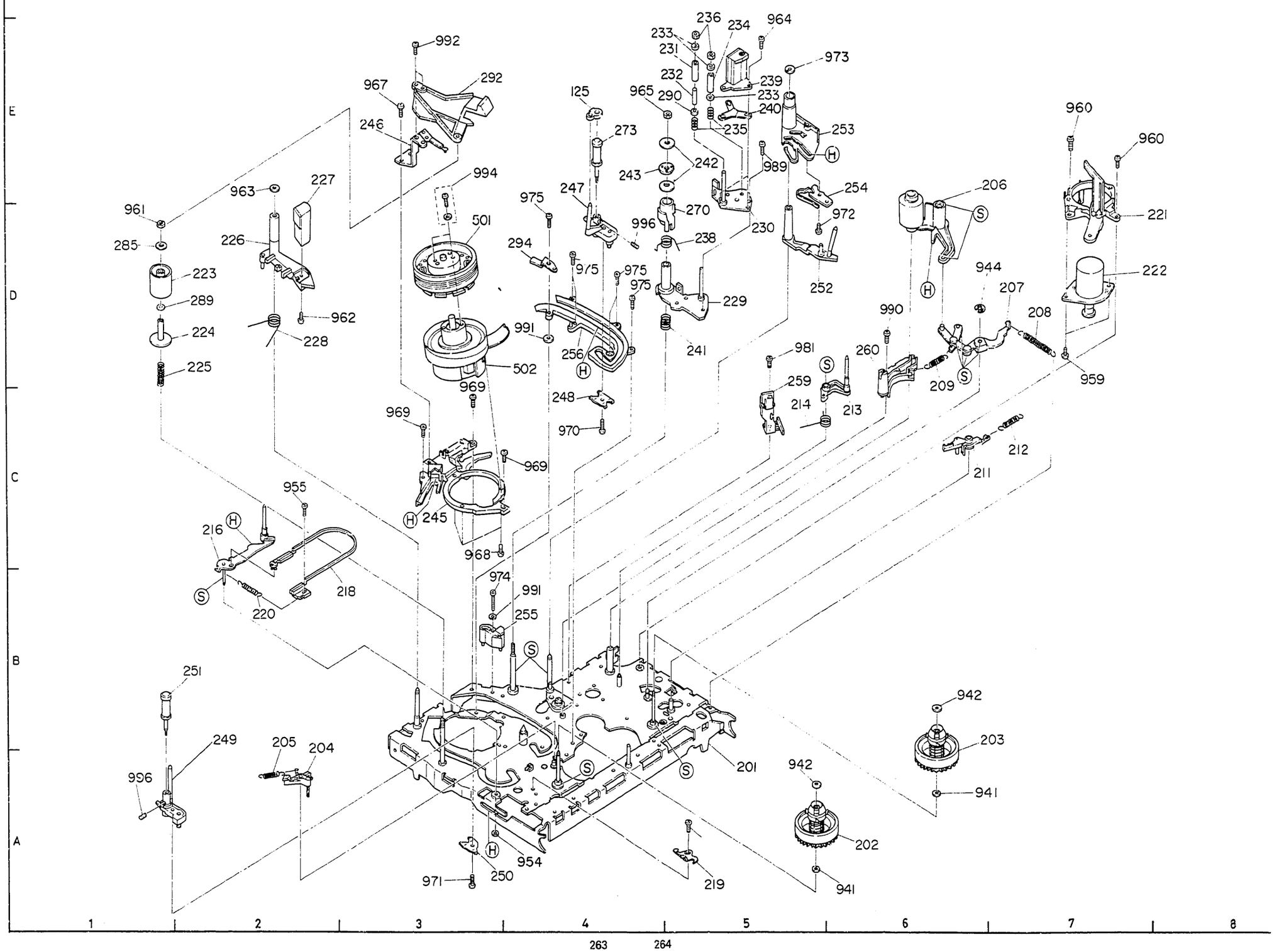
### CABINET SECTION




1 2 3 4 5 6 7 8

261 262

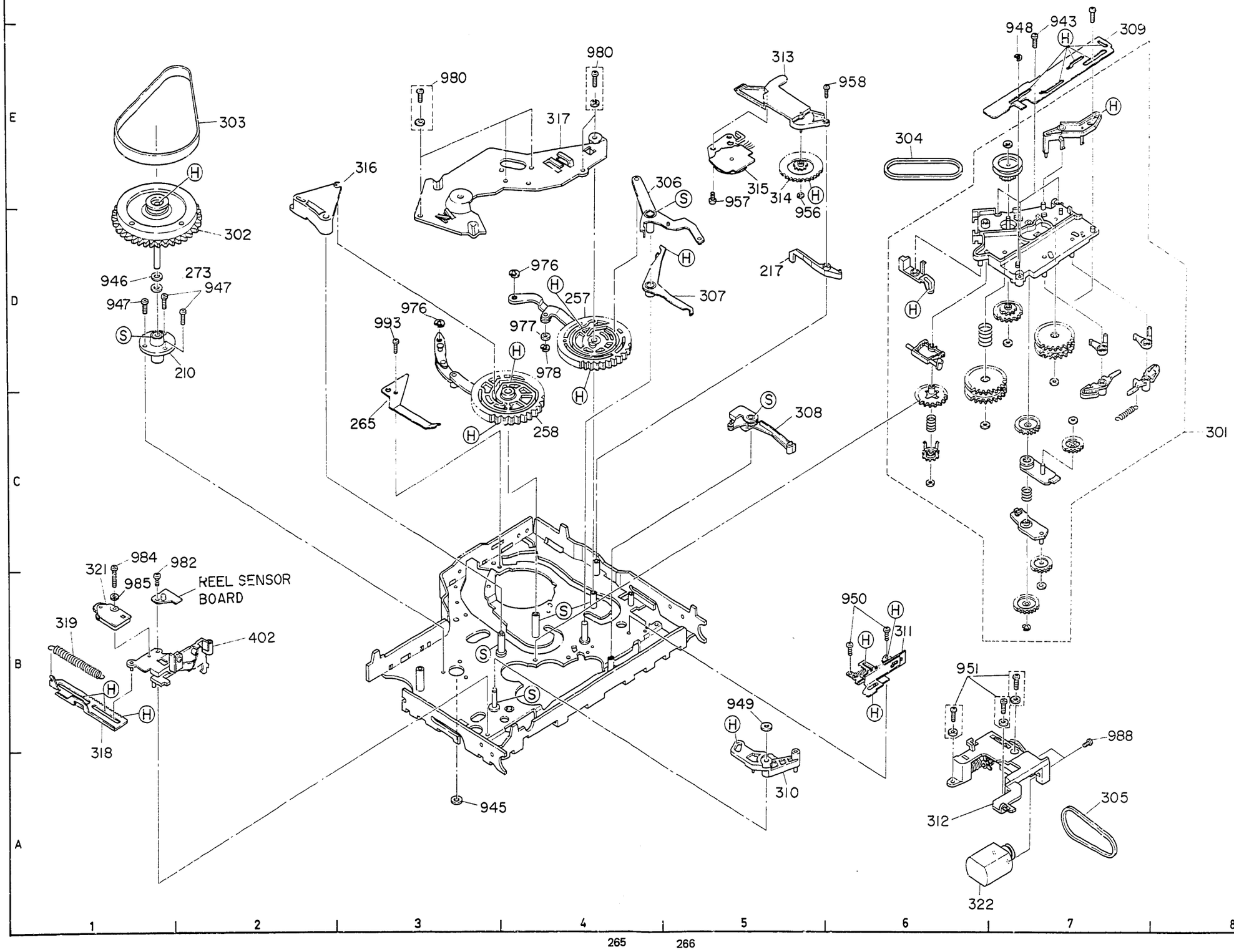
## CHASSIS (UPPER) SECTION



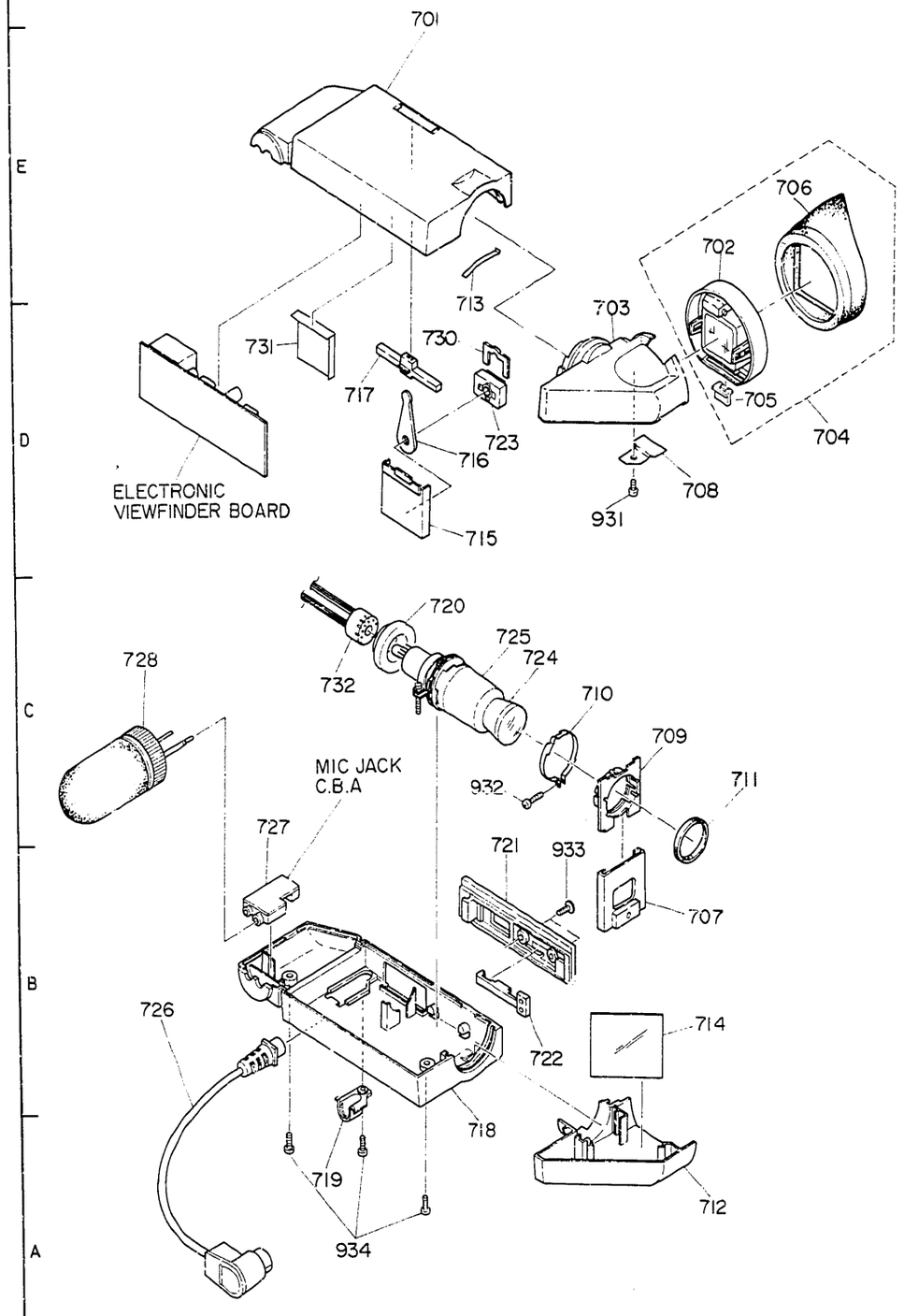

1 2 3 4 5 6 7 8

263 264

## CHASSIS (LOWER) SECTION

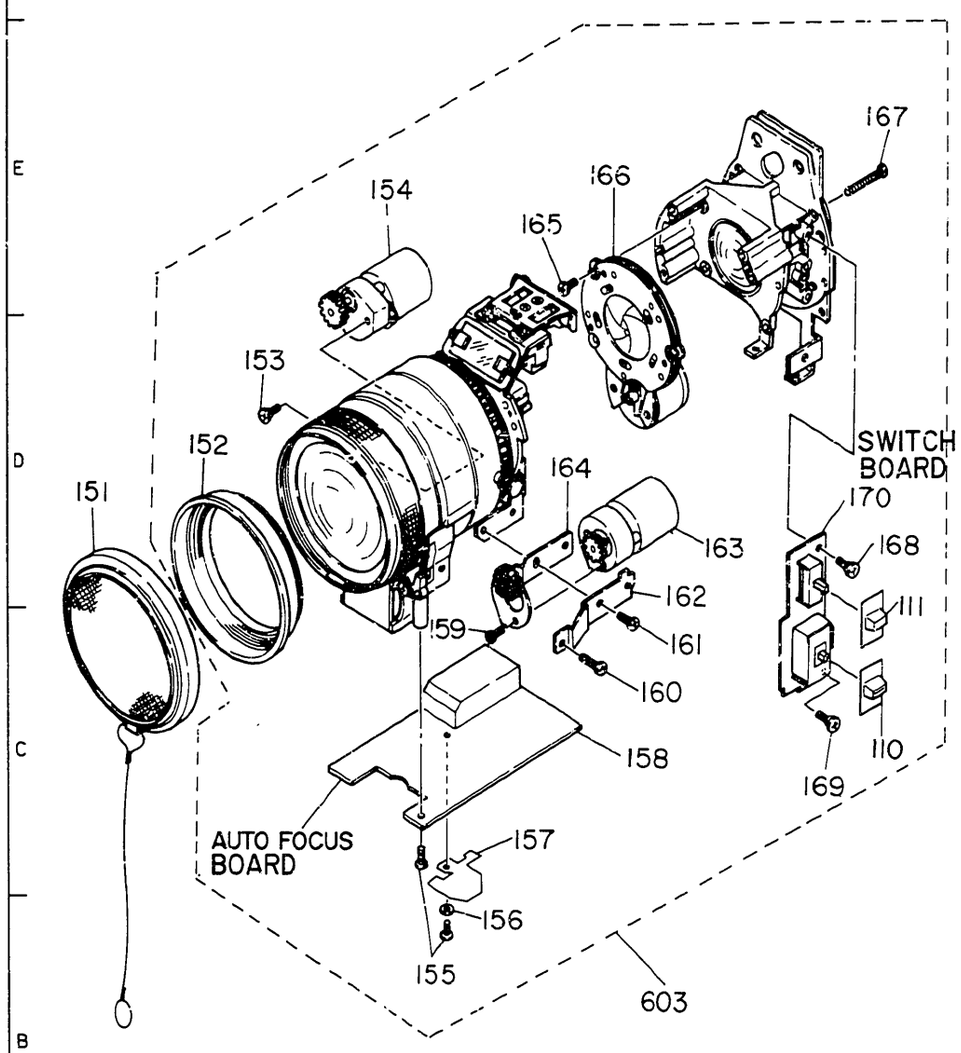


## ELECTRONIC VIEW FINDER SECTION






## LENS SECTION



## LUBRICATION

Lubrication points are shown in the exploded view diagrams by marks (Ⓢ, Ⓗ)
Lubricants shown in the diagram are as follows.

Ⓢ Sonic slider oil (= 1600)
Ⓗ Hitazol (MO-138)

## REPLACEMENT PARTS LIST

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | CAPACITORS |
| C 050 | 0256387 | TANTALUM ELECTROLYTIC 10UF |
| C 051 | 0201068 | CAPACITORO.033UF+80-20%25VCERAMICCH IP |
| C 052 | 0201065 | CAPACITOR 0.022UF+-10% 25V CERAMIC CHIP |
| C 212 | 0256158 | ELECTROLYTIC 47UF 16V |
| C 214 | 0256158 | ELECTROLYTIC 47UF 16V |
| C 216 | 0256158 | ELECTROLYTIC 47UF 16V |
| C 218 | 0201037 | CERAMIC CHIP 330PF+-5% 50V |
| C 221 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 223 | 0201001 | CAPACITOR 22PF+-5% 50V CERAMIC CHIP |
| C 224 | 0201037 | CERAMIC CHIP 330PF+-5% 50V |
| C 225 | 0201028 | CERAMIC CHIP 56PF+-5% 50V |
| C 226 | 0201007 | CAPACITOR 0.01UF+-20% 50V |
| C 227 | 0201031 | CAPACITOR 100 F+-5% |
| C 228 | 0201025 | CERAMIC CHIP 33PF+-5% |
| C 230 | 0201040 | CAPACITOR 560PF+-5% |
| C 231 | 0201031 | CAPACITOR 100PF+-5% |
| C 232 | 0201034 | CERAMIC CHIP 180PF+-5% 50V |
| C 236 | 0201036 | CERAMIC CHIP 270PF+-5% 50V |
| C 243 | 0201031 | CAPACITOR 100PF+-5% |
| C 244 | 0201024 | CAPACITOR 27PF+-5% |
| C 246 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C 252 | 0201007 | CAPACITOR 0.01UF+-20% 50V |
| C 253 | 0201033 | CERAMIC CHIP 150PF+-5% 50V |
| C 256 | 0201001 | CAPACITOR 22PF+-5% 50V CERAMIC CHIP |
| C 257 | 0201040 | CAPACITOR 560PF+-5% |
| C 259 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C 402 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 419 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C 420 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C 422 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C 423 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 426 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 430 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 601 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 603 | 0201072 | CERAMIC CHIP 0.047UF+80-20% |
| C 606 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 607 | 0201007 | CERAMIC CHIP 0.01UF+-20% 50V |
| C 608 | 0201003 | CERAMIC CHIP 0.001UF+-20% 50V |
| C 609 | 0201100 | CERAMIC CHIP 0.033UF+-10% |
| C 611 | 0201007 | CERAMIC CHIP 0.01UF+-20% 50V |
| C 612 | 0201007 | CERAMIC CHIP 0.01UF+-20% 50V |
| C 614 | 0201028 | CERAMIC CHIP 56PF+-5% 50V |
| C 615 | 0201035 | CERAMIC CHIP 220PF+-5% 50V |
| C 616 | 0201031 | CERAMIC CHIP 100PF+-5% 50V |
| C 617 | 0201007 | CERAMIC CHIP 0.01UF+-20% 50V |
| C 620 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 621 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 622 | 0201007 | CERAMIC CHIP 0.01UF+-20% 50V |
| C 624 | 0201057 | CERAMIC CHIP 0.0022UF+-10% 50V |
| C 625 | 0201057 | CERAMIC CHIP 0.0022UF+-10% 50V |
| C 626 | 0201057 | CERAMIC CHIP 0.0022UF+-10% 50V |
| C 630 | 0201007 | CERAMIC CHIP 0.01UF+-20% 50V |
| C 635 | 0201007 | CERAMIC CHIP 0.01UF+-20% 50V |
| C 638 | 0201057 | CERAMIC CHIP 0.0022UF+-10% 50V |
| C 639 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 647 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 649 | 0201069 | CERAMIC CHIP 0.1UF+-10% 25V |
| C 652 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 656 | 0201003 | CERAMIC CHIP 0.001UF+-20% 50V |
| C 657 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C 658 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 901 | 0201025 | CERAMIC CHIP 33PF+-5% |
| C 902 | 0201025 | CERAMIC CHIP 33PF+-5% |
| C 908 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 910 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 911 | 0256499 | ELECTROLYTIC 0.022F 5.5V |
| C 912 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 913 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 914 | 0201065 | CERAMIC CHIP 0.022UF+-10% 25V |
| C 915 | 0201008 | CERAMIC CHIP 0.015UF+-10% |
| C 916 | 0201008 | CERAMIC CHIP 0.015UF+-10% |
| C 95. | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C 952 | 0256158 | ELECTROLYTIC 47UF 16V |
| C 953 | 0256158 | ELECTROLYTIC 47UF 16V |
| C 954 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C 956 | 0256158 | ELECTROLYTIC 47UF 16V |
| CT1001 | 5058492 | TRIMMER 90PF |
| CT1101 | 5058092 | TRIMMER 40PF |
| CT1102 | 5058482 | TRIMMER 90PF |
| C1001 | 0201008 | CERAMIC CHIP 0.015UF+-10% 50V |
| C1002 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1005 | 0256156 | CAPACITOR ELECTROLYTIC 22UF 16V |
| C1006 | 0256154 | CAPACITOR ELECTROLYTIC 4.7UF 25V |
| C1007 | 0201017 | CAPACITOR 7PF+-0.5PF |
| C1008 | 0201015 | CERAMIC CHIP 5PF+-0.25PF 50V |
| C1009 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1010 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1011 | 0201989 | CERAMIC CHIP 0.1UF+-20% 50V |
| C1102 | 0256156 | CAPACITOR ELECTROLYTIC 22UF 16V |
| C1121 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C1122 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C1129 | 0256160 | ELECTROLYTIC 47UF.6.3V |
| C1131 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1135 | 0256160 | ELECTROLYTIC 47MF.6.3V |
| C1306 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1307 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1312 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1317 | 0256151 | CAPACITOR ELECTROLYTIC 1UF 50V |
| C1318 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1332 | 0256155 | CAPACITOR ELECTROLYTIC 10UF 16V |
| C1338 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1501 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1504 | 0256151 | CAPACITOR ELECTROLYTIC 1UF 50V |
| C1505 | 0256151 | CAPACITOR ELECTROLYTIC 1UF 50V |
| C1506 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1508 | 0256151 | CAPACITOR ELECTROLYTIC 1UF 50V |
| C1509 | 0256158 | ELECTROLYTIC 47UF 16V |
| C1510 | 0256156 | CAPACITOR ELECTROLYTIC 22UF 16V |
| C1515 | 0256159 | ELECTROLYTIC 100UF 6.3V |
| C1814 | 0256360 | TANTALUM ELECTROLYTIC 0.1UF 35V |
| C1817 | 0256363 | TANTALUM ELECTROLYTIC 0.33UF.35V |
| C1828 | 0249750 | CERAMIC DISC 100PF+-10% 1000V |
| C1836 | 0268108 | MYLAR 0.01UF+-10% 400V |
| | | RESISTORS |
| R 050 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 051 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 052 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 053 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R 054 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 055 | 0103875 | CHIP RESISTOR 470KOHM+-5% 0.1W |
| R 056 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R 057 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 058 | 0103830 | CHIP RESISTOR 820HM+-5% 0.1W |
| R 059 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 060 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 061 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 062 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 063 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R 064 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 065 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R 066 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 067 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 068 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 069 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 070 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 071 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R 072 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 074 | 0103822 | CHIP RESISTOR 180HM+-5% 0.1W |
| R 101 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 102 | 0103828 | CHIP RESISTOR 560HM+-5% 0.1W |
| R 103 | 0103825 | CHIP RESISTOR 330HM+-5% 0.1W |
| R 104 | 0103841 | CHIP RESISTOR 680OHM+-5% 0.1W |
| R 201 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 202 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 203 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 204 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R 206 | 0103838 | CHIP RESISTOR 3900HM+-5% 0.1W |
| R 207 | 0103838 | CHIP RESISTOR 3900HM+-5% 0.1W |
| R 208 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R 211 | 0103839 | CHIP RESISTOR 4700HM+-5% 0.1W |
| R 212 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 213 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 214 | 0103839 | CHIP RESISTOR 4700HM+-5% 0.1W |
| R 215 | 0103839 | CHIP RESISTOR 4700HM+-5% 0.1W |
| R 216 | 0103839 | CHIP RESISTOR 4700HM+-5% 0.1W |
| R 217 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R 218 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R 219 | 0103839 | CHIP RESISTOR 4700HM+-5% 0.1W |
| R 220 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R 221 | 0103837 | CHIP RESISTOR 3300HM+-5% 0.1W |
| R 222 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R 223 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R 224 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R 225 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 226 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R 227 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 228 | 0103873 | CHIP RESISTOR 330KOHM+-5% 0.1W |
| R 229 | 0103846 | CHIP RESISTOR 1.8KOHM+-5% 0.1W |
| R 230 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R 231 | 0103868 | CHIP RESISTOR 120KOHM+-5% 0.1W |
| R 232 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R 233 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 234 | 0103837 | CHIP RESISTOR 3300HM+-5% 0.1W |
| R 235 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R 236 | 0103836 | CHIP RESISTOR 2700HM+-5% 0.1W |
| R 237 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R 239 | 0103866 | CHIP RESISTOR 82KOHM+-5% 0.1W |
| R 240 | 0103866 | CHIP RESISTOR 82KOHM+-5% 0.1W |
| R 241 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 242 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 243 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 244 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 245 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 246 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 247 | 0103831 | CHIP RESISTOR 100OHM+-5% 0.1W |
| R 248 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R 250 | 0103841 | CHIP RESISTOR 680OHM+-5% 0.1W |
| R 251 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R 252 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R 253 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R 254 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R 255 | 0103841 | CHIP RESISTOR 680OHM+-5% 0.1W |
| R 256 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 257 | 0103875 | CHIP RESISTOR 470KOHM+-5% 0.1W |
| R 258 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R 259 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 260 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R 261 | 0103829 | CHIP RESISTOR 68OHM+-5% 0.1W |
| R 262 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R 401 | 0103819 | CHIP RESISTOR 10OHM+-5% 0.1W |
| R 402 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 404 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R 405 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 406 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R 407 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R 408 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R 409 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R 410 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R 411 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R 412 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R 413 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R 414 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 415 | 0103846 | CHIP RESISTOR 1.8KOHM+-5% 0.1W |
| R 416 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R 417 | 0103876 | CHIP RESISTOR 560KOHM+-5% 0.1W |
| R 418 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R 419 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R 420 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 421 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 422 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 423 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 424 | 0103835 | CHIP RESISTOR 2200HM+-5% 0.1W |
| R 425 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 426 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 427 | 0170474 | FUSE RESISTOR 10 OHM+-5% 1/4W |
| R 428 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R 430 | 0103873 | CHIP RESISTOR 330KOHM+-5% 0.1W |
| R 431 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R 432 | 0103837 | CHIP RESISTOR 3300HM+-5% 0.1W |
| R 433 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 434 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 435 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 601 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 602 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R 603 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 604 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 605 | 0103875 | CHIP RESISTOR 470KOHM+-5% 0.1W |
| R 606 | 0103875 | CHIP RESISTOR 470KOHM+-5% 0.1W |
| R 607 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | RESISTORS |
| R 608 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 609 | 0103833 | CHIP RESISTOR 150OHM+-5% 0.1W |
| R 610 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 611 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 614 | 0103868 | CHIP RESISTOR 120KOHM+-5% 0.1W |
| R 615 | 0103868 | CHIP RESISTOR 120KOHM+-5% 0.1W |
| R 616 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R 617 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 618 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 619 | 0103874 | CHIP RESISTOR 390KOHM+-5% 0.1W |
| R 620 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R 621 | 0103878 | CHIP RESISTOR 820KOHM+-5% 0.1W |
| R 622 | 0103873 | CHIP RESISTOR 330KOHM+-5% 0.1W |
| R 623 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 624 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R 625 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 626 | 0103829 | CHIP RESISTOR 68OHM+-5% 0.1W |
| R 627 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R 628 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 629 | 0103873 | CHIP RESISTOR 330KOHM+-5% 0.1W |
| R 630 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 631 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R 632 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R 633 | 0103868 | CHIP RESISTOR 120KOHM+-5% 0.1W |
| R 634 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 635 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 636 | 0103870 | CHIP RESISTOR 180KOHM+-5% 0.1W |
| R 637 | 0103862 | CHIP RESISTOR 39KOHM+-5% 0.1W |
| R 638 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 639 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 640 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 641 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 642 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 643 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 644 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 645 | 0103871 | CHIP RESISTOR 220KOHM+-5% 0.1W |
| R 646 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R 647 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 648 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 649 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R 650 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 651 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 652 | 0103871 | CHIP RESISTOR 220KOHM+-5% 0.1W |
| R 653 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 654 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R 655 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 656 | 0103831 | CHIP RESISTOR 100OHM+-5% 0.1W |
| R 657 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 658 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 659 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 660 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R 661 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 662 | 0103866 | CHIP RESISTOR 82KOHM+-5% 0.1W |
| R 663 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 664 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 665 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 666 | 0103873 | CHIP RESISTOR 330KOHM+-5% 0.1W |
| R 667 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 668 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R 669 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 670 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 671 | 0103819 | CHIP RESISTOR 100HM+-5% 0.1W |
| R 672 | 0103819 | CHIP RESISTOR 100HM+-5% 0.1W |
| R 673 | 0103819 | CHIP RESISTOR 100HM+-5% 0.1W |
| R 674 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R 675 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 676 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 678 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 679 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R 680 | 0103877 | CHIP RESISTOR 680KOHM+-5% 0.1W |
| R 681 | 0103871 | CHIP RESISTOR 220KOHM+-5% 0.1W |
| R 682 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R 683 | 0103868 | CHIP RESISTOR 120KOHM+-5% 0.1W |
| R 684 | 0103834 | CHIP RESISTOR 180OHM+-5% 0.1W |
| R 685 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 686 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 687 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R 688 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 689 | 0103870 | CHIP RESISTOR 180KOHM+-5% 0.1W |
| R 690 | 0103873 | CHIP RESISTOR 330KOHM+-5% 0.1W |
| R 691 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R 692 | 0103871 | CHIP RESISTOR 222KOHM+-5% 0.1W |
| R 693 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R 694 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R 901 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 902 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R 903 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R 904 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R 905 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R 906 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R 907 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 908 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 909 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 910 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 911 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 912 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 913 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 914 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R 915 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R 916 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 917 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R 918 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R 919 | 0103833 | CHIP RESISTOR 150OHM+-5% 0.1W |
| R 920 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R 921 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R 922 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 923 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 924 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 925 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 926 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R 927 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R 928 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 929 | 0103871 | CHIP RESISTOR 220KOHM+-5% 0.1W |
| R 930 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 931 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 932 | 0103868 | CHIP RESISTOR 120KOHM+-5% 0.1W |
| R 933 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 934 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 935 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R 936 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |



| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | RESISTORS |
| R 937 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R 938 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 939 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 940 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 941 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 942 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 943 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 944 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 945 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 946 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 947 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 948 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 949 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 951 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R 952 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R 953 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R 954 | 0103842 | CHIP RESISTOR 820KOHM+-5% 0.1W |
| R 955 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 956 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 960 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 961 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 967 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 968 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 977 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 978 | 0103819 | CHIP RESISTOR 100HM+-5% 0.1W |
| R 979 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 980 | 0103834 | CHIP RESISTOR 180OHM+-5% 0.1W |
| R 981 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R 982 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R 983 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 984 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 985 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 986 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 987 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 988 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 989 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 990 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 991 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 992 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 993 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R 994 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 995 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 996 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 997 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R 998 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R 999 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1001 | 0103963 | CHIP RESISTOR 220KOHM+-5% 1/8W |
| R1002 | 0103921 | CHIP RESISTOR 68OHM+-5% 1/8W |
| R1003 | 0103944 | CHIP RESISTOR 5.6KOHM+-5% 1/8W |
| R1004 | 0103925 | CHIP RESISTOR 150OHM+-5% 1/8W |
| R1006 | 0103936 | CHIP RESISTOR 1.2K OHM +-5% |
| R1008 | 0103952 | CHIP RESISTOR 27KOHM+-5% 1/8W |
| R1009 | 0103939 | CHIP RESISTOR 2.2K OHM +-5% |
| R1010 | 0103945 | CHIP RESISTOR 6.8KOHM+-5% 1/8W |
| R1011 | 0103937 | CHIP RESISTOR 1.5KOHM+-5% 1/8W |
| R1012 | 0103983 | CHIP RESISTOR 430OHM+-5% 1/8W |
| R1013 | 0103926 | CHIP RESISTOR 180OHM+-5% 1/8W |
| R1014 | 0103960 | CHIP RESISTOR 120KOHM+-5% 1/8W |
| R1015 | 0103947 | CHIP RESISTOR 10KOHM+-5% 1/8W |
| R1016 | 0103984 | CHIP RESISTOR 62KOHM+-5% 1/8W |
| R1017 | 0170640 | METAL FILM 2.7MOHM+-1% 1/2W |
| R1018 | 0103974 | CHIP RESISTOR 5.6MOHM+-10% 1/8W |
| R1019 | 0103981 | CHIP RESISTOR 2400HM+-5% 1/8W |
| R1101 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1102 | 0103838 | CHIP RESISTOR 3900HM+-5% 0.1W |
| R1103 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1104 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1105 | 0103831 | CHIP RESISTOR 1000HM+-5% 0.1W |
| R1106 | 0103840 | CHIP RESISTOR 5600HM+-5% 0.1W |
| R1107 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1108 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R1109 | 0103842 | CHIP RESISTOR 8200HM+-5% 0.1W |
| R1110 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R1111 | 0103821 | CHIP RESISTOR 150HM+-5% 0.1W |
| R1112 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1113 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1114 | 0103841 | CHIP RESISTOR 6800HM+-5% 0.1W |
| R1115 | 0103840 | CHIP RESISTOR 5600HM+-5% 0.1W |
| R1116 | 0103837 | CHIP RESISTOR 3300HM+-5% 0.1W |
| R1117 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1118 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1119 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1120 | 0103832 | CHIP RESISTOR 1200HM+-5% 0.1W |
| R1121 | 0103840 | CHIP RESISTOR 5600HM+-5% 0.1W |
| R1122 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1123 | 0103823 | CHIP RESISTOR 220HM+-5% 0.1W |
| R1124 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R1125 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1126 | 0103846 | CHIP RESISTOR 1.8KOHM+-5% 0.1W |
| R1127 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1128 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R1129 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1130 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R1131 | 0103846 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1132 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1133 | 0103842 | CHIP RESISTOR 8200HM+-5% 0.1W |
| R1134 | 0103842 | CHIP RESISTOR 8200HM+-5% 0.1W |
| R1137 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1138 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1139 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1141 | 0103872 | CHIP RESISTOR 270KOHM+-5% 0.1W |
| R1142 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1143 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1144 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1145 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1146 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1147 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1148 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R1149 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1150 | 0103835 | CHIP RESISTOR 2200HM+-5% 0.1W |
| R1153 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1154 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1155 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0. |
| R1156 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1157 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R1158 | 0103839 | CHIP RESISTOR 470OHM+-5% 0.1W |
| R1159 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1160 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1161 | 0103839 | CHIP RESISTOR 4700HM+-5% 0.1W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | CAPACITORS |
| R1162 | 0103839 | CHIP RESISTOR 470OHM+-5% 0.1W |
| R1163 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1164 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1165 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1166 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1167 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1168 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1169 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1170 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R1171 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R1172 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1173 | 0103877 | CHIP RESISTOR 680KOHM+-5% 0.1W |
| R1174 | 0103877 | CHIP RESISTOR 680KOHM+-5% 0.1W |
| R1175 | 0103877 | CHIP RESISTOR 680KOHM+-5% 0.1W |
| R1176 | 0103877 | CHIP RESISTOR 680KOHM+-5% 0.1W |
| R1177 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R1178 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R1179 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1181 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1182 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1183 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R1184 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1185 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1186 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1187 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R1191 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1192 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1193 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1194 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1195 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1196 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1197 | 0103846 | CHIP RESISTOR 1.8KOHM+-5% 0.1W |
| R1198 | 0103836 | CHIP RESISTOR 270OHM+-5% 0.1W |
| R1199 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1200 | 0103842 | CHIP RESISTOR 820OHM+-5% 0.1W |
| R1201 | 0103827 | CHIP RESISTOR 470HM+-5% 0.1W |
| R1202 | 0103823 | CHIP RESISTOR 220HM+-5% 0.1W |
| R1203 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1205 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1209 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1211 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1212 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1215 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R1217 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R1224 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1225 | 0103839 | CHIP RESISTOR 470OHM+-5% 0.1W |
| R1226 | 0103839 | CHIP RESISTOR 470OHM+-5% 0.1W |
| R1227 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1228 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1229 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1231 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1232 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1233 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1234 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1237 | 0103868 | CHIP RESISTOR 120KOHM+-5% 0.1W |
| R1238 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1239 | 0103831 | CHIP RESISTOR 100OHM+-5% 0.1W |
| R1241 | 0103831 | CHIP RESISTOR 100OHM+-5% 0.1W |
| R1242 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R1244 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1246 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1247 | 0103842 | CHIP RESISTOR 820OHM+-5% 0.1W |
| R1249 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1250 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1251 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1252 | 0103877 | CHIP RESISTOR 680KOHM+-5% 0.1W |
| R1253 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1255 | 0103835 | CHIP RESISTOR 220OHM+-5% 0.1W |
| R1256 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1257 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1258 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R1259 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1260 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1261 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1262 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1263 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1266 | 0103838 | CHIP RESISTOR 390KOHM+-5% 0.1W |
| R1267 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1268 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1269 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1270 | 0103819 | CHIP RESISTOR 10OHM+-5% 0.1W |
| R1273 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1274 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1276 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R1277 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1279 | 0103841 | CHIP RESISTOR 680OHM+-5% 0.1W |
| R1281 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R1282 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R1263 | 0103841 | CHIP RESISTOR 680OHM+-5% 0.1W |
| R1284 | 0103839 | CHIP RESISTOR 470OHM+-5% 0.1W |
| R1285 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1286 | 0103848 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1287 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R1288 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R1291 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1292 | 0103827 | CHIP RESISTOR 470HM+-5% 0.1W |
| R1293 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1294 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1295 | 0103831 | CHIP RESISTOR 100OHM+-5% 0.1W |
| R1296 | 0103834 | CHIP RESISTOR 180OHM+-5% 1/8W |
| R1298 | 0103873 | CHIP RESISTOR 330KOHM+-5% 0.1W |
| R1311 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1312 | 0103862 | CHIP RESISTOR 39KOHM+-5% 0.1W |
| R1313 | 0103860 | CHIP RESISTOR 27KOHM+-5% 0.1W |
| R1316 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1318 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1319 | 0103844 | CHIP RESISTOR 1.2KOHM+-5% 0.1W |
| R1320 | 0103835 | CHIP RESISTOR 220OHM+-5% 0.1W |
| R1321 | 0103832 | CHIP RESISTOR 120OHM+-5% 0.1W |
| R1322 | 0103872 | CHIP RESISTOR 270KOHM+-5% 0.1W |
| R1323 | 0103825 | CHIP RESISTOR 33OHM+-5% 0.1W |
| R1324 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1325 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1326 | 0103836 | CHIP RESISTOR 270OHM+-5% 0.1W |
| R1327 | 0103834 | CHIP RESISTOR 180OHM+-5% 1/8W |
| R1328 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R1330 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1331 | 0103874 | CHIP RESISTOR 390KOHM+-5% 0.1W |
| R1332 | 0103838 | CHIP RESISTOR 390OHM+-5% 0.1W |



| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | RESISTORS |
| R1333 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1334 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1335 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1336 | 0103825 | CHIP RESISTOR 33OHM+-5% 0.1W |
| R1337 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1338 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R1339 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1340 | 0103870 | CHIP RESISTOR 180KOHM+-5% 0.1W |
| R1341 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1342 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R1343 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R1344 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1345 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| R1346 | 0103839 | CHIP RESISTOR 470OHM+-5% 0.1W |
| R1347 | 0103849 | CHIP RESISTOR 2.7KOHM+-5% 0.1W |
| R1348 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1349 | 0103870 | CHIP RESISTOR 180KOHM+-5% 0.1W |
| R1350 | 0103872 | CHIP RESISTOR 270KOHM+-5% 0.1W |
| R1351 | 0103869 | CHIP RESISTOR 39KOHM+-5% 0.1W |
| R1352 | 0103871 | CHIP RESISTOR 220KOHM+-5% 0.1W |
| R1353 | 0103878 | CHIP RESISTOR 820KOHM+-5% 0.1W |
| R1354 | 0103971 | CHIP RESISTOR 1MOHM+-5% 1/8W |
| R1356 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R1357 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R1358 | 0103971 | CHIP RESISTOR 1MOHM+-5% 1/8W |
| R1359 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1360 | 0103849 | CHIP RESISTOR 3.3KOHM+-5% 0.1W |
| R1361 | 0103839 | CHIP RESISTOR 470OHM+-5% 0.1W |
| R1362 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1363 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1364 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1365 | 0103838 | CHIP RESISTOR 390OHM+-5% 0.1W |
| R1370 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1374 | 0103862 | CHIP RESISTOR 39KOHM+-5% 0.1W |
| R1381 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1382 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1501 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1502 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1503 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1504 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1506 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1507 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R1509 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1512 | 0103837 | CHIP RESISTOR 330OHM+-5% 0.1W |
| R1513 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1514 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1515 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1516 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1517 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R1519 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1520 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R1521 | 0103851 | CHIP RESISTOR 4.7KOHM+-5% 0.1W |
| R1522 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1523 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1525 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1527 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R1528 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |
| R1529 | 0103862 | CHIP RESISTOR 39KOHM+-5% 0.1W |
| R1530 | 0103855 | CHIP RESISTOR 10KOHM+-5% 0.1W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R1531 | 0103863 | CHIP RESISTOR 47KOHM+-5% 0.1W |
| R1532 | 0103865 | CHIP RESISTOR 68KOHM+-5% 0.1W |
| R1534 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1535 | 0103859 | CHIP RESISTOR 22KOHM+-5% 0.1W |
| R1536 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1537 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1538 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1539 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1540 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1541 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1542 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1543 | 0103854 | CHIP RESISTOR 8.2KOHM+-5% 0.1W |
| R1544 | 0103823 | CHIP RESISTOR 22OHM+-5% 0.1W |
| R1545 | 0103845 | CHIP RESISTOR 1.5KOHM+-5% 0.1W |
| R1546 | 0170475 | FUSE RESISTOR 10 OHM+-5% 1/4W |
| R1548 | 0103830 | CHIP RESISTOR 82OHM+-5% 0.1W |
| R1550 | 0103861 | CHIP RESISTOR 33KOHM+-5% 0.1W |
| R1806 | 0103838 | CHIP RESISTOR 390OHM+-5% 0.1W |
| R1808 | 0103866 | CHIP RESISTOR 82KOHM+-5% 0.1W |
| R1811 | 0103866 | CHIP RESISTOR 82KOHM+-5% 0.1W |
| R1812 | 0103843 | CHIP RESISTOR 1KOHM+-5% 0.1W |
| R1813 | 0103831 | CHIP RESISTOR 100OHM+-5% 0.1W |
| R1815 | 0103858 | CHIP RESISTOR 18KOHM+-5% 0.1W |
| R1816 | 0103867 | CHIP RESISTOR 100KOHM+-5% 0.1W |
| R1817 | 0103841 | CHIP RESISTOR 680OHM+-5% 0.1W |
| R1818 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R1819 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R1820 | 0103881 | CHIP RESISTOR 2.2MOHM+-5% 0.1W |
| R1821 | 0103844 | CHIP RESISTOR 1.2KOHM+-5% 0.1W |
| R1822 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R1826 | 0103840 | CHIP RESISTOR 560OHM+-5% 0.1W |
| R1827 | 0103853 | CHIP RESISTOR 6.8KOHM+-5% 0.1W |
| R1835 | 0103856 | CHIP RESISTOR 12KOHM+-5% 0.1W |
| R1836 | 0103857 | CHIP RESISTOR 15KOHM+-5% 0.1W |
| R1837 | 0103847 | CHIP RESISTOR 2.2KOHM+-5% 0.1W |
| R1838 | 0103820 | CHIP RESISTOR 12OHM+-5% 0.1W |
| R1840 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| R1839 | 0103883 | CHIP RESISTOR 1.5MOHM+-5% 0.1W |
| R1841 | 0103864 | CHIP RESISTOR 56KOHM+-5% 0.1W |
| R1845 | 0103827 | CHIP RESISTOR 47OHM+-5% 0.1W |
| R1847 | 0103836 | CHIP RESISTOR 270OHM+-5% 0.1W |
| R1848 | 0103879 | CHIP RESISTOR 1MOHM+-5% 0.1W |
| RT 201 | 5007432 | SEMI VARIABLE 1.0KOHM |
| RT 202 | 5007431 | SEMI VARIABLE 470OHM |
| RT 401 | 5007436 | SEMI VARIABLE 22KOHM |
| RT 402 | 5007438 | SEMI VARIABLE 100KOHM |
| RT 601 | 5007452 | SEMI VARIABLE 220KOHM |
| RT 602 | 5007452 | SEMI VARIABLE 220KOHM |
| RT 603 | 5007452 | SEMI VARIABLE 220KOHM |
| RT 604 | 5007452 | SEMI VARIABLE 220KOHM |
| RT 605 | 5007452 | SEMI VARIABLE 220KOHM |
| RT 901 | 5007447 | SEMI VARIABLE 10KOHM |
| RT 951 | 5007532 | SEMI VARIABLE 10KOHM |
| RT1101 | 5007443 | SEMI VARIABLE 470OHM |
| RT1102 | 5007447 | SEMI VARIABLE 10KOHM |
| RT1103 | 5007446 | SEMI VARIABLE RESISTOR 4.7KOHM |
| RT1104 | 5007445 | SEMI VARIABLE 2.2KOHM |
| RT1105 | 5007445 | SEMI VARIABLE 2.2KOHM |
| RT1106 | 5007444 | SEMI VARIABLE 1KOHM |
| RT1107 | 5007437 | SEMI VARIABLE 47KOHM |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | RESISTORS |
| RT1108 | 5007437 | SEMI VARIABLE 47KOHM |
| RT1109 | 5007437 | SEMI VARIABLE 47KOHM |
| RT1110 | 5007437 | SEMI VARIABLE 47KOHM |
| RT1111 | 5007437 | SEMI VARIABLE 47KOHM |
| RT1112 | 5007437 | SEMI VARIABLE 47KOHM |
| RT1113 | 5007434 | SEMI VARIABLE 4.7KOHM |
| RT1114 | 5007434 | SEMI VARIABLE 4.7KOHM |
| RT1115 | 5007445 | SEMI VARIABLE 2.2KOHM |
| RT1116 | 5007445 | SEMI VARIABLE 2.2KOHM |
| RT1117 | 5007445 | SEMI VARIABLE 2.2KOHM |
| RT1118 | 5007431 | SEMI VARIABLE 470OHM |
| RT1120 | 5007433 | SEMI VARIABLE 2.2KOHM |
| RT1121 | 5007434 | SEMI VARIABLE 4.7KOHM |
| RT1122 | 5007434 | SEMI VARIABLE 4.7KOHM |
| PT1317 | 5007455 | SEMI VARIABLE RESISTOR 100OHM |
| RT1318 | 5007715 | SEMI VARIABLE 10KOHM |
| RT1319 | 5007712 | SEMI VARIABLE 1KOHM |
| RT1320 | 5007795 | SEMI VARIABLE 150KOHM |
| RT1321 | 5007461 | SEMI VARIABLE 4.7KOHM |
| RT1322 | 5007464 | SEMI VARIABLE 47KOHM |
| RT1323 | 5007793 | SEMI VARIABLE 2.2MOHM |
| RT1324 | 5007467 | SEMI VARIABLE 470KOHM |
| RT1325 | 5007459 | SEMI VARIABLE 2.2KOHM |
| RT1501 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1502 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1503 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1504 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1505 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1506 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1507 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1508 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1509 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1510 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1511 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1512 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1513 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1514 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1515 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1516 | 5007436 | SEMI VARIABLE 22KOHM |
| RT1601 | 5005587 | VARIABLE 20KOHM |
| RT1801 | 5007715 | SEMI VARIABLE 10KOHM |
| RT1802 | 5007711 | SEMI VARIABLE 470OHM |
| RT1803 | 5007468 | VARIABLE 1MOHM |
| RT1804 | 5007712 | SEMI VARIABLE 1KOHM |
| RT1805 | 5007468 | VARIABLE 1MOHM |
| RV 101 | 5005584 | VARIABLE RESISTOR 500KOHM |
| S1601 | 5522182 | SWITCH |

| | | |
|---|---|---|
| | | SEMI-CONDUCTORS |
| D 050 | 5328321 | DIODE MA151K (MH) |
| D 051 | 5328321 | DIODE MA151K (MH) |
| D 080 | 5381931 | DIODE 1HD101 |
| D 081 | 5381931 | DIODE 1HD101 |
| D 082 | 5381931 | DIODE 1HD101 |
| D 083 | 5381931 | DIODE 1HD101 |
| D 084 | 5381931 | DIODE 1HD101 |
| D 125 | 5380931 | DIODE |
| D 201 | 5331051 | DIODE 1K60P |
| D 202 | 5328321 | DIODE MA151K (MH) |
| D 203 | 5328321 | DIODE MA151K (MH) |
| D 204 | 5328321 | DIODE MA151K (MH) |
| D 401 | 5328302 | DIODE MA151WK (MN) |
| D 402 | 5328381 | DIODE MA153 (MC) |
| D 601 | 5328303 | DIODE MA152WK (MU) |
| D 602 | 5328303 | DIODE MA152WK (MU) |
| D 603 | 5328304 | DIODE MA152WA (MO) |
| D 604 | 5328321 | DIODE MA151K (MH) |
| D 605 | 5328381 | DIODE MA153 (MC) |
| D 607 | 5328303 | DIODE MA152WK (MU) |
| D 608 | 5328304 | DIODE MA152WA (MO) |
| D 609 | 5328303 | DIODE MA152WK (MU) |
| D 610 | 5328381 | DIODE MA153 (MC) |
| D 612 | 5328304 | DIODE MA152WA (MO) |
| D 613 | 5328303 | DIODE MA152WK (MU) |
| D 615 | 5328321 | DIODE MA151K (MH) |
| D 616 | 5328321 | DIODE MA151K (MH) |
| D 617 | 5332151 | DIODE DS1350 |
| D 618 | 5332151 | DIODE DS1350 |
| D 619 | 5328381 | DIODE MA153 (MC) |
| D 620 | 5328321 | DIODE MA151K (MH) |
| D 621 | 5328321 | DIODE MA151K (MH) |
| D 622 | 5328381 | DIODE MA153 (MC) |
| D 902 | 5328321 | DIODE MA151K (MH) |
| D 905 | 5328303 | DIODE MA152WK (MU) |
| D 906 | 5328321 | DIODE MA151K (MH) |
| D 907 | 5328303 | DIODE MA152WK (MU) |
| D 908 | 5328303 | DIODE MA152WK (MU) |
| D 910 | 5328303 | DIODE MA152WK (MU) |
| D 912 | 5328303 | DIODE MA152WK (MU) |
| D 951 | 5332541 | DIODE ERA 81-004 |
| D 952 | 5332541 | DIODE ERA 81-004 |
| D 953 | 5328304 | DIODE MA152WA (MO) |
| D 954 | 5328321 | DIODE MA151K (MH) |
| D 970 | 5331671 | DIODE DS1350-FA3 |
| D1001 | 5332401 | DIODE MA165 |
| D1101 | 5328321 | DIODE MA151K (MH) |
| D1102 | 5328321 | DIODE MA151K (MH) |
| D1105 | 5328321 | DIODE MA151K (MH) |
| D1107 | 5328321 | DIODE MA151K (MH) |
| D1110 | 5328302 | DIODE MA152WK (MN) |
| D1301 | 5328321 | DIODE MA151K (MH) |
| D1302 | 5328303 | DIODE MA152WK (MU) |
| D1303 | 5328303 | DIODE MA152WK (MU) |
| D1501 | 5328303 | DIODE MA152WK (MU) |
| D1502 | 5328303 | DIODE MA152WK (MU) |
| D1503 | 5328303 | DIODE MA152WK (MU) |
| D1505 | 5331592 | DIODE 1SS133 |
| D1506 | 5331592 | DIODE 1SS133 |
| D1601 | 5381941 | LED GL1PR101 |
| D1602 | 5381941 | LED GL1PR101 |
| D1603 | 5381941 | LED GL1PR101 |
| D1801 | 5331001 | DIODE 1SS81 |
| D1802 | 5328321 | DIODE MA151K (MH) |
| D1803 | 5381943 | LED GL1PR101 |
| IC 050 | 5311552 | IC S8056H1 |
| IC 201 | 5374381 | IC HT4440 |
| IC 202 | 5374492 | IC HT6502A |
| IC 203 | 5378761 | IC HT4522 |



| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | SEMI-CONDUCTORS |
| IC 204 | 5374502 | IC HT4503A |
| IC 401 | 5363321 | IC BA5112 |
| IC 402 | 5364201 | IC UPC1513HA |
| IC 601 | 5355892 | IC HA11747 BNT |
| IC 602 | 5366631 | IC BA6303F |
| IC 603 | 5366631 | IC BA6303F |
| IC 604 | 5369911 | IC M54548L |
| IC 605 | 5366371 | IC HA13434 |
| IC 606 | 5366601 | IC BA6305 |
| IC 607 | 5363182 | IC UPC358G |
| IC 608 | 5368231 | IC UPD4013BG |
| IC 609 | 5369391 | IC MSL6378RS |
| IC 610 | 5366561 | IC TA1060L |
| IC 901 | 5361752 | IC HD614042FB93 |
| IC 902 | 5366781 | IC UPC339G2 |
| IC 903 | 5369171 | IC M54543L |
| IC 904 | 5366591 | IC BA6125 |
| IC 905 | 5366601 | IC M5278L-05 |
| IC 906 | 5377821 | IC HT4422 |
| IC 907 | 5366611 | IC TA78L009P |
| IC 960 | 5374561 | IC HT4442 |
| IC1101 | 5374734 | IC HT5424C |
| IC1102 | 5374742 | IC HT5425A |
| IC1103 | 5352771 | IC NJM2904 |
| IC1104 | 5370021 | IC HT5438 |
| IC1105 | 5374752 | IC HT5426A |
| IC1106 | 5374762 | IC HT5422A |
| IC1303 | 5364721 | IC NJM3415D |
| IC1304 | 5364721 | IC NJM3415D |
| IC1305 | 5350601 | IC NJM4558D |
| IC 502 | 5377782 | IC HT5197A |
| IC1503 | 5377791 | IC HT5198 |
| IC1506 | 5366501 | IC AN6541 |
| IC1604 | 5366181 | IC AN78M08R |
| IC1801 | 5364742 | IC BA7125L |
| Q 051 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 052 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 053 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 054 | 5328791 | TRANSISTOR DTC124K-25 |
| Q 055 | 5328791 | TRANSISTOR DTC124K-25 |
| Q 056 | 5328791 | TRANSISTOR DTC124K-25 |
| Q 057 | 5328791 | TRANSISTOR DTC124K-25 |
| Q 101 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 119 | 5381041 | PHOTO TRANSISTOR NIL5141E-AB |
| Q 123 | 5380131 | PHOTO TRANSISTOR |
| Q 124 | 5380131 | PHOTO TRANSISTOR |
| Q 201 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 204 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 205 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 206 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 207 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 208 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 209 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 210 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 211 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 212 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 213 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 214 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 215 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 216 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 218 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 401 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 402 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 404 | 5328351 | TRANSISTOR 2SD602B(MR) |
| Q 405 | 5328792 | MICRO PACKAGE TRANSISTOR DTA124K-15 |
| Q 406 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 601 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 602 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 603 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 604 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 606 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 901 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 902 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 903 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 904 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 905 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 906 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 907 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 908 | 5328335 | TRANSISTOR 2SB709A-RS |
| Q 909 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 910 | 5328971 | TRANSISTOR 2SC2412KBRST |
| Q 911 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 951 | 5324081 | TRANSISTOR 2SB962-P |
| Q 952 | 5324081 | TRANSISTOR 2SB962-P |
| Q 953 | 5328793 | TRANSISTOR DTC144K-26 |
| Q 954 | 5328793 | TRANSISTOR DTC144K-26 |
| Q1001 | 5328341 | TRANSISTOR 2SD601B(YR) |
| Q1002 | 5328751 | TRANSISTOR 2SA1022C |
| Q1004 | 5328741 | TRANSISTOR 2SC2404C |
| Q1005 | 5328751 | TRANSISTOR 2SA1022C |
| Q1006 | 5326041 | TRANSISTOR 2SK316 |
| Q1101 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1102 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1103 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1104 | 5328272 | TRANSISTOR 2SK160(5)(K5) |
| Q1105 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1106 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1107 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1108 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1109 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1110 | 5328251 | TRANSISTOR 2SA1122-CD MICRO PACKAGE |
| Q1111 | 5328251 | TRANSISTOR 2SA1122-CD MICRO-PACKAGE |
| Q1112 | 5328272 | TRANSISTOR 2SK160(5)(K5) |
| Q1113 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1114 | 5328251 | TRANSISTOR 2SA1122-CD MICRO PACKAGE |
| Q1115 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1116 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1117 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1121 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1122 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1123 | 5328251 | TRANSISTOR 2SA1122-CD MICRO PACKAGE |
| Q1131 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1133 | 5328201 | TRANSISTOR 2SC2618 (RC) |
| Q1134 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1135 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1136 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1137 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1138 | 5328251 | MICRO PACKAGE TRANSISTOR 2SA1122-CD |
| Q1140 | 5328793 | TRANSISTOR DTC144K-26 |
| Q1141 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1143 | 5328973 | TRANSISTOR 2SC2412K-BST |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | SEMI-CONDUCTORS |
| Q1144 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1145 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1146 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1147 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1294 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1295 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1296 | 5328973 | TRANSISTOR 2SC2412K-BST |
| Q1301 | 5328351 | TRANSISTOR 2SD602R(WR) |
| Q1302 | 5323931 | TRANSISTOR 2SD1083L |
| Q1303 | 5328241 | TRANSISTOR 2SC2463E (DE) |
| Q1304 | 5328701 | TRANSISTOR 2SD814S (PS) |
| Q1305 | 5328692 | TRANSISTOR 2SB792T(IT) |
| Q1306 | 5328692 | TRANSISTOR 2SB792T(IT) |
| Q1307 | 5328343 | TRANSISTOR 2SD601R(YR) |
| Q1308 | 5328351 | TRANSISTOR 2SD602R(WR) |
| Q1309 | 5323931 | TRANSISTOR 2SD1083L |
| Q1310 | 5322681 | TRANSISTOR 2SB793R |
| Q1311 | 5328343 | TRANSISTOR 2SD601R(YR) |
| Q1312 | 5328241 | TRANSISTOR 2SC2463E (DE) |
| Q1313 | 5328691 | TRANSISTOR 2SB792S (IS) |
| Q1314 | 5328343 | TRANSISTOR 2SD601R(YR) |
| Q1315 | 5328691 | TRANSISTOR 2SB792S (IS) |
| Q1316 | 5328691 | TRANSISTOR 2SB792S (IS) |
| Q1317 | 5328861 | TRANSISTOR 2SB710R(CR) |
| Q1318 | 5323332 | TRANSISTOR 2SD882-Q |
| Q1319 | 5328701 | TRANSISTOR 2SD814S (PS) |
| Q1321 | 5328343 | TRANSISTOR 2SD601R(YR) |
| Q1501 | 5321292 | TRANSISTOR 2SC1740S |
| Q1502 | 5321204 | TRANSISTOR SILICON 2SB562BC 1MHZ 90 OMW |
| Q1503 | 5320593 | TRANSISTOR 2SA673C |
| Q1504 | 5328791 | TRANSISTOR DTC124K-25 |
| Q1505 | 5328791 | TRANSISTOR DTC124K-25 |
| Q1506 | 5328792 | MICRO PACKAGE TRANSISTOR DTA124K-15 |
| Q1507 | 5328791 | TRANSISTOR DTC124K-25 |
| Q1510 | 5328741 | TRANSISTOR 2SC2404-(UC) |
| Q1511 | 5328791 | TRANSISTOR DTC124K-25 |
| Q1512 | 5328741 | TRANSISTOR 2SC2404-(UC) |
| Q1513 | 5328741 | TRANSISTOR 2SC2404-(UC) |
| Q1514 | 5328272 | TRANSISTOR 2SK160[illegible](LK5) |
| Q1515 | 5328791 | TRANSISTOR DTC124K-25 |
| Q1601 | 53235e1 | TRANSISTOR DTC124F |
| Q1801 | 5328211 | TRANSISTOR 2SA1121 (SC) |
| Q1802 | 5328241 | TRANSISTOR 2SC2463E (DE) |
| Q1803 | 5323831 | TRANSISTOR 2SD974 |
| TH1101 | 5340282 | THERMISTER 112102-2 |
| TH1102 | 5340282 | THERMISTER 112102-2 |
| ZD 901 | 5330325 | DIODE HZ9A2 |
| ZD 902 | 5331019 | DIODE HZ-3B3 |
| ZD 903 | 5330328 | DIODE HZ-9C3 |
| ZD1501 | 5330714 | DIODE HZ4B-1 |
| | | TRANSFORMERS |
| T 401 | 5262511 | BIAS OSC.COIL |
| T1301 | 5271522 | FBT |
| T1801 | 5271811 | FBT |
| | | COILS |
| L 201 | 5152607 | CHOKE COIL 100MICRO H |
| L 202 | 5152607 | CHOKE COIL 100MICRO H |
| L 203 | 5152607 | CHOKE COIL 100MICRO H |
| L 204 | 5152612 | CHOKE COIL 220MICRO H |
| L 205 | 5152607 | CHOKE COIL 100MICRO H |
| L 206 | 5152611 | CHOKE COIL 180UH |
| L 207 | 5152606 | CHOKE COIL 82UH+-10% |
| L 208 | 5152599 | CHOKE COIL 27MICRO H |
| L 209 | 5152598 | CHOKE COIL 22UH+-10% |
| L 210 | 5152598 | CHOKE COIL 22UH+-10% |
| L 211 | 5152588 | CHOKE COIL 3.9UH |
| L 212 | 5152596 | CHOKE COIL 15UH |
| L 213 | 5152596 | CHOKE COIL 15UH |
| L 214 | 5152607 | CHOKE COIL 100MICRO H |
| L 215 | 5152603 | CHOKE COIL 47MH |
| L 216 | 5152607 | CHOKE COIL 100MICRO H |
| L 218 | 5152617 | CHOKE COIL 0.47UH |
| L 219 | 5152617 | CHOKE COIL 0.47UH |
| L 220 | 5152617 | CHOKE COIL 0.47UH |
| L 221 | 5152617 | CHOKE COIL 0.47UH |
| L 222 | 5152597 | CHOKE COIL 18UH |
| L 223 | 5152608 | CHOKE COIL 120UH+-10% |
| L 224 | 5152603 | CHOKE COIL 47UH |
| L 225 | 5152608 | CHOKE COIL 120UH+-10% |
| L 401 | 5152615 | CHOKE COIL 22MH |
| L 402 | 5152623 | CHOKE COIL 15MH |
| L 403 | 5152346 | CHOKE COIL 470UH |
| L 601 | 5152603 | CHOKE COIL 47UH |
| L 951 | 5152751 | CHOKE COIL 120UH |
| L 952 | 5152752 | CHOKE COIL 50UH |
| L 953 | 5152752 | CHOKE COIL 50UH |
| L 954 | 5152943 | CHOKE COIL 390UH |
| L 960 | 5152607 | CHOKE COIL 100MICRO H |
| L1001 | 5152593 | CHOKE COIL 8.2UH |
| L1002 | 5152982 | CHOKE COIL 360UH |
| L1101 | 5152614 | CHOKE COIL 330UH |
| L1102 | 5152607 | CHOKE COIL 100MICRO H |
| L1103 | 5152607 | CHOKE COIL 100MICRO H |
| L1104 | 5152611 | CHOKE COIL 180UH |
| L1105 | 5152607 | CHOKE COIL 100MICRO H |
| L1106 | 5152595 | CHOKE COIL 12UH |
| L1107 | 5152595 | CHOKE COIL 12UH |
| L1108 | 5152607 | CHOKE COIL 100MICRO H |
| L1109 | 5152607 | CHOKE COIL 100MICRO H |
| L1110 | 5152592 | CHOKE COIL 6.8UH |
| L1111 | 5152596 | CHOKE COIL 15UH |
| L1112 | 5152607 | CHOKE COIL 100MICRO H |
| L1113 | 5152608 | CHOKE COIL 120UH+-10% |
| L1114 | 5152602 | CHOKE COIL 39UH |
| L1115 | 5152613 | CHOKE COIL 270UH |
| L1116 | 5152607 | CHOKE COIL 100MICRO H |
| L1117 | 5152612 | CHOKE COIL 220MICRO H |
| L1301 | 5152813 | CHOKE COIL 10MH |
| L1302 | 5270092 | COIL 33MH |
| L1303 | 5152337 | CHOKE COIL 100UH |
| L1801 | 5152585 | CHOKE COIL 4.7UH |
| L1802 | 5152612 | CHOKE COIL 220MICRO H |
| L1804 | 5270574 | COIL |
| L1805 | 5152603 | CHOKE COIL 47MH |
| | | CRYSTALS |
| X1101 | 5780711 | CRYSTAL |



| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | MISCELLANEOUS |
| CP 201 | 5124131 | TRAP COIL |
| CP 202 | 5162254 | DELAY LINE |
| CP 203 | 5162753 | TRAP COIL |
| CP 204 | 5162225 | BAND PASS FILTER |
| CP1101 | 5162841 | TRAP COIL |
| CP1102 | 5162584 | LOW PASS FILTER |
| CP1103 | 5162851 | LOW PASS FILTER |
| CP1105 | 5162843 | BAND PASS FILTER |
| CP1106 | 5162582 | LOW PASS FILTER |
| CX 901 | 5781021 | CERAMIC OSC |
| DL 201 | 5785214 | DELAY LINE |
| DL 202 | 5785312 | DELAY LINE |
| DL1101 | 5162861 | DELAY LINE |
| DL1102 | 5162546 | DELAY LINE |
| DL1103 | 5785662 | DELAY LINE |
| DL1104 | 5162842 | DELAY LINE |
| DL1105 | 5785631 | DELAY LINE |
| DL1106 | 5785771 | DELAY LINE |
| F 970 | 5721406 | FUSE 125V 2A |
| H 970 | 5722211 | FUSE HOLDER |
| H 971 | 5722211 | FUSE HOLDER |
| J 101 | 5673791 | JACK |
| J 401 | 5673781 | JACK |
| J 970 | 5674341 | JACK |
| RL 901 | 5641861 | RELAY |
| S 050 | 5622811 | SLIDE SWITCH |
| S 051 | 5633911 | SWITCH |
| S 052 | 5633911 | SWITCH |
| S 053 | 5633911 | SWITCH |
| S 054 | 5633911 | SWITCH |
| S 055 | 5633911 | SWITCH |
| S 056 | 5633911 | SWITCH |
| S 057 | 5633911 | SWITCH |
| S 121 | 5635221 | SWITCH |
| S 122 | 5635221 | SWITCH |
| S1601 | 5622182 | SWITCH |
| S1602 | 5622182 | SWITCH |
| S1603 | 5633911 | SWITCH |
| S1604 | 5633911 | SWITCH |
| S1605 | 5635034 | SWITCH |
| S1606 | 5635034 | SWITCH |
| | | FOR FINAL ASSEMBLY |
| 101 | 6076481 | KNOB |
| 102 | 6592364 | BUTTON SHEET |
| 103 | 6025783 | SIDE COVER(R) |
| 104 | 6082673 | BUTTON |
| 105 | 6082693 | BUTTON |
| 106 | 5967821 | BATTERY TERMINAL ASSEMBLY |
| 107 | 6188951 | BATTERY COVER |
| 108 | 6335682 | HAND STRAP |
| 109 | 6889651 | BOTTOM FRAME |
| 110 | 6076541 | KNOB |
| 111 | 6076531 | KNOB |
| 112 | 6076472 | KNOB |
| 113 | 6076492 | KNOB |
| 114 | 6025662 | SIDE COVER(L) |
| 115 | 6889225 | LEVER |
| 116 | 6082682 | BUTTON |
| 117 | 6887431 | TOP PIECE |
| 118 | 7393721 | ACCESARY SHOE |
| 119 | 6645432 | E.V.F SHOE |
| 120 | 6537093 | SPRING |
| 121 | 6188994 | CASSETT LID |
| 122 | 7784364 | SCREW |
| 123 | 6890301 | COVER |
| 124 | 7784341 | SCREW |
| 125 | 6890911 | CAP |
| 126 | 7746771 | KNOB SHEET |
| 130 | 6889085 | PLATE |
| 202 | 6887704 | SUPPLY REEL TABLE |
| 203 | 6887714 | TAKE-UP REEL TABLE |
| 204 | 6888262 | BRAKE |
| 205 | 6544711 | SPRING |
| 206 | 6979911 | ARM |
| 207 | 7392882 | PRESSURE ROLLER ARM |
| 208 | 6544724 | SPRING |
| 209 | 6544762 | SPRING |
| 210 | 6979804 | BEARING |
| 211 | 6888933 | BRAKE |
| 212 | 6544755 | SPRING |
| 213 | 6974642 | ARM |
| 214 | 6530813 | SPRING |
| 215 | 6888865 | HOLDER |
| 216 | 7392924 | TENTION ARM |
| 217 | 6979942 | ARM |
| 218 | 7393333 | BAND |
| 219 | 7393582 | SPRING STOPPER |
| 220 | 6544736 | SPRING |
| 221 | 6888963 | HOLDER |
| 223 | 6544951 | IMPEDANCE ROLLER |
| 224 | 4503433 | FLANGE |
| 225 | 6522391 | SPRING |
| 226 | 6888342 | HEAD BASE |
| 227 | 5447761 | FELL ERASE HEAD |
| 228 | 6550781 | SPRING |
| 229 | 7393013 | ARM |
| 230 | 7392982 | PLATE |
| 231 | 6888531 | GUIDE ROLLER |
| 232 | 4504421 | FLANGE |
| 233 | 4504011 | FLANGE |
| 234 | 4504461 | TAPE GUIDE |
| 235 | 6522432 | SPRING |
| 236 | 7785021 | NUT |
| 237 | 7777505 | FLYWHEEL HOLDER |
| 238 | 6550791 | SPRING |
| 239 | 5447751 | AUDIO CONTROL HEAD |
| 240 | 6539041 | SPRING |
| 241 | 6522441 | SPRING |
| 242 | 7787031 | THRUST SUPPORT |
| 243 | 6750441 | RETAINER |
| 245 | 6974762 | CATCHER O |
| 246 | 5792925 | BRUSH |
| 247 | 6979893 | GUIDE ROLLER BASE (O) |
| 248 | 7392782 | PLATE |
| 249 | 6979835 | GUIDE ROLLER BASE (I) |
| 250 | 7394151 | PLATE |
| 251 | 4503404 | GUIDE ROLLER |
| 252 | 6979962 | ARM |
| 253 | 6888802 | ARM |
| 254 | 6539052 | SPRING |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | FOR FINAL ASSEMBLY |
| 255 | 6979972 | STOPPER |
| 256 | 6888573 | GUIDE RAIL |
| 257 | 7392735 | LOADING LINK |
| 258 | 7392771 | LOADING LINK (D) |
| 259 | 0170263 | DEW SENSOR |
| 260 | 6888982 | LED HOLDER |
| 261 | 6076501 | WHEEL |
| 262 | 6889271 | JACK HOLDER |
| 263 | 6889232 | HOLDER |
| 264 | 6889172 | HOLDER |
| 265 | 6539202 | SPRING |
| 266 | 7748252 | BELT COVER |
| 267 | 6889292 | HINGE |
| 268 | 6887462 | HOLDER |
| 273 | 4503406 | GUIDE ROLLER |
| 301 | 7031871 | GEAR BLOCK |
| 302 | 6375065 | FLYWHEEL |
| 303 | 6358012 | BELT |
| 304 | 6356441 | BELT |
| 305 | 6356443 | BELT |
| 306 | 7392802 | GEAR |
| 307 | 7392792 | GEAR |
| 308 | 6889043 | ARM |
| 309 | 7393052 | SLIDER |
| 310 | 6889033 | LORDING ARM |
| 311 | 7393175 | SLIDER |
| 312 | 6888877 | LORDING GEAR |
| 313 | 6888753 | HOLDER |
| 314 | 6888793 | GEAR |
| 315 | 5612612 | SWITCH |
| 316 | 6888552 | ARM |
| 317 | 7393072 | GEAR PLATE |
| 318 | 7392761 | SLIDER |
| 319 | 6544783 | SPRING |
| 320 | 6550774 | SPRING |
| 321 | 6344632 | DAMPER |
| 401 | 7393127 | CASSETTE HOLDER ASSEMBLY |
| 402 | 6889026 | HOLDER |
| 403 | 6888603 | HOLDER |
| 404 | 6888952 | HOLDER |
| 501 | 5459651 | UPPER CYLINDER |
| 502 | 5459661 | LOWER CYLINDER |
| 601 | 6887532 | FRAME |
| 602 | 7453371 | SHIELD CASE |
| 603 | 6955902 | LENS ASSEMBLY |
| 604 | 5311541 | CRT |
| 607 | 5381693 | BIAS LIGHT |
| 608 | 5883812 | CONNECTOR |
| 609 | 5884861 | CONNECTOR-EVF |
| 610 | 0741306 | BIND SCREW |
| 611 | 8691108 | SCREW(2x8) |
| 612 | 8691308 | BT SCREW-2.6MMDX8MM |
| 613 | 0714211 | NYLON RIVET - 3MMD |
| 614 | 8813113 | WASHER-2.6D |
| 621 | 8741405 | SCREW - 3MMD X 5MM BIND |
| 701 | 6025613 | UPPER CASE |
| 703 | 6887751 | UPPER NECK |
| 704 | 6955931 | LENS |
| 705 | 6082511 | BUTTON |
| 706 | 6592292 | CAP |
| 707 | 6888678 | COVER |
| 708 | 6539171 | SPRING |
| 709 | 6890131 | HOLDER |
| 710 | 7393831 | BRACKET |
| 711 | 6592122 | RUBBER |
| 712 | 6889951 | COVER |
| 713 | 6536114 | SPRING |
| 714 | 6693123 | MIRROR |
| 715 | 6838651 | LEVER HOLDER |
| 716 | 6887721 | BUTTON LEVER |
| 717 | 6082521 | BUTTON |
| 718 | 6026002 | BOTTOM CASE |
| 719 | 6889981 | BOTTOM PIECE |
| 720 | 6592421 | HOLDER |
| 721 | 6887732 | SHOE PIECE |
| 722 | 6889573 | LOCK PIECE |
| 723 | 6[illegible]3003 | BUTTON PIECE |
| 724 | 5311451 | CRT |
| 725 | 5271865 | DEFELECTION YOKE |
| 726 | 5855212 | CABLE |
| 727 | 5672442 | JACK |
| 728 | 5422262 | MICROPHONE |
| 730 | 6539241 | SPRING |
| 730 | 7748671 | SPACER |
| 732 | 5654453 | SOCKET |
| 901 | 8691106 | DT SCREW-2MMDX6MM |
| 902 | 8691306 | SCREW (BT2.6X6) |
| 903 | 8691305 | SCREW (2.6X5) |
| 904 | 0724306 | SCREW 2.6X6 |
| 905 | 8699303 | BT BIND SCREW-2.6MMDX8MM(BLACK) |
| 906 | 7784371 | SCREW |
| 907 | 0741304 | BIND SCREW-2.6MMDX4MM |
| 931 | 8699305 | SCREW (2.6X5) |
| 932 | 8711108 | PAN HEAD SCREW-2MMDX8MM |
| 933 | 7781582 | FALT SCREW-3MMDX10MM(BLACK) |
| 934 | 8699308 | BT BIND SCREW-2.6MMDX8MM(BLACK) |
| 941 | 7787535 | PS.WASHER |
| 942 | 7778859 | POLYSLIDER WASHER |
| 943 | 8741108 | BINDSREW-2MMDX8MM |
| 944 | 7230901 | E RING |
| 946 | 7778848 | POL SLIDER WASHER |
| 947 | 8741104 | BIND SCREW-2MMDX4MM |
| 948 | 7778859 | POLYSLIDER WASHER |
| 9.. | 7787615 | WASHER |
| 950 | 8741103 | SCREW(2X3B) |
| 951 | 8650104 | SCREW |
| 952 | 8691108 | SCREW(2X8) |
| 953 | 8741103 | SCREW(2X3B) |
| 954 | 7788901 | WASHER |
| 955 | 8741103 | SCREW(2X3B) |
| 956 | 7788901 | WASHER |
| 957 | 8619001 | SCREW (BT1.7X3) |
| 958 | 8741104 | BIND SCREW-2MMDX4MM |
| 959 | 8691105 | SCREW |
| 960 | 8741103 | SCREW(2X3B) |
| 961 | 7785182 | NUT |
| 962 | 8741104 | BIND SCREW-2MMDX4MM |
| 963 | 7787615 | WASHER |
| 964 | 7780901 | PAN HEAD SCREW-1.7MMDX4MM |
| 967 | 8741104 | BIND SCREW-2MMDX4MM |
| 968 | 8741106 | BIND SCREW-2MMDX6MM |



| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | FOR FINAL ASSEMBLY |
| 969 | 8741105 | BIND SCREW |
| 970 | 7780905 | SCREW (1.7X6) |
| 971 | 7780905 | SCREW (1.7X6) |
| 972 | 8691106 | DT SCREW-2MMDX6MM |
| 973 | 7787615 | WASHER |
| 974 | 8741110 | BIND SCREW-2MMDX 10MM |
| 975 | 8741104 | BIND SCREW-2MMDX4MM |
| 976 | 7230901 | E RING |
| 977 | 7788623 | WASHER |
| 978 | 7230901 | E RING |
| 979 | 7787616 | WASHER |
| 980 | 8650105 | SCREW (2X5) |
| 981 | 8741103 | SCREW(2X3B) |
| 982 | 8691106 | DT SCREW-2MMDX6MM |
| 983 | 8741106 | BIND SCREW-2MMDX6MM |
| 984 | 8741110 | BIND SCREW-2MMDX 10MM |
| 985 | 7789791 | WASHER |
| 987 | 8741108 | BINDSREW-2MMDX8MM |
| 988 | 7780902 | PAN HEAD SCREW-1.7MMDX2MM |
| 989 | 7780902 | PAN HEAD SCREW-1.7MMDX2MM |
| 990 | 8741104 | BIND SCREW-2MMDX4MM |
| 991 | 8812231 | WASHER - 2MMD |
| 992 | 8741106 | BIND SCREW-2MMDX6MM |
| 993 | 8741103 | SCREW(2X3B) |
| 994 | 7784371 | SCREW |
| 995 | 8741105 | SCREW |
| 996 | 7782611 | SCREW |
| | | FOR ACCESSARIES |
| 801 | 4648992 | OPERATING GUIDE |

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